THE HORTICULTURIST

AND

JOURNAL

OF

Rural Art and Rural Taste.

68073

DEVOTED TO

HORTICULTURE, LANDSCAPE GARDENING, RURAL ARCHITECTURE, BOTANY, POMOLOGY, ENTOMOLOGY, RURAL ECONOMY, ETC.

EDITED BY

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VOLUME XV.—JANUARY TO DECEMBER, 1860.

NEW YORK:
PUBLISHED BY C. M. SAXTON AND BARKER,
No. 25 PARK ROW.
1860.

EDWARD O. JENKINS, PRINTER,
No. 26 Frankfort Street, New York.

Doing too Much.

WE were much struck on reading recently some remarks attributed to Sir Edward Bulwer Lytton. It is well known that he has been a hard student, a busy politician, and a voluminous writer, and it has excited the surprise of many how he has found time for all these things. On being asked, he replied, in substance, that it was by "not doing too much." His labors have all been *methodized;* and thus, without overtasking himself either mentally or physically, he has accomplished an amount of labor which to many it has seemed impossible to crowd into an ordinary lifetime. This "not doing too much" may be applied to all the undertakings of life, and it has a special application to those engaged in Horticultural pursuits, whether professionally or as mere amateurs. A large proportion of the failures to accomplish purposed ends may be attributed to an inordinate desire to do too much. However well plans may be laid out, and however much enthusiasm may be felt in their accomplishment, nothing satisfactory will ever be done without a due regard to "method," and without sufficient force to make "method" effective. In all great plans or undertakings, matters foreign to the object in view, and all minor matters whatever, must be made subordinate to the one great idea embodied in such undertaking. In some of the pursuits of life this is well understood, and a greater measure of success would crown our efforts if it were understood in all; and especially would this be the case were the principle soundly applied to the operations of the Horticulturist and Landscape Gardener. We have known cases where improvements have been "doing" for years, but where nothing effective or satisfactory has ever been "done;" not, certainly, for want of means, for these have been abundant, but from want of "method;" there has been no leading idea apparent; no one thing seems to have been made subordinate to another, and consequently the right thing has not been done at the right time; to use a homely phrase, there have been "too many irons in the fire." All this must necessarily lead to disappointment and vexation, and an unwarranted waste of means, and it renders utterly futile all hope of ever impressing upon a landscape a beauty of purpose or unity of design. We love to see a purpose imbodied in everything, and we love to see such purpose carried out with a due regard to the fitness of surrounding objects, but we do not believe either of these desirable ends can be accomplished without combining good taste in design with a rigorous method in execution. It is the purpose manifested in the judicious use of the material at our command which gives character to all rural embellishment. This may not always demand the highest appreciation of æsthetics, but some sense of the beauty and fitness of things in their relations to surrounding objects is indispensable to give a pleasing expression to the disposition that is to be made of them. Now just here we might preach a sermon, but for the present we only designed dropping a few hints, to impress upon the reader the fact, that he will accomplish most by "not doing too much."

BRIEF REMARKS ON PLANT-HOUSES.

BY WM. CHORLTON.

As the various plant-houses are in active operation at this time of year, a few general remarks regarding them may be of service.

There are several kinds of structures required where artificial plant-growing is attempted in anything like perfection, or extent of collection; and although, as a general thing, a great diversity of form is not necessary, it has to some extent its advantages. Compact and not large compartments, well-built, close-jointed, and tightly-glazed houses are indispensable where the best culture is expected. Shelter from cold winds and the changeable drafts of our fickle climate, is also of importance; but this shelter should be some distance from the building, that there may be no shade caused thereby, nor the purity of the surrounding atmosphere interfered with. No plants will assimilate the necessary elements or food sufficiently to support healthy growth, and more particularly the flowering and fruiting processes, without an abundance of light; consequently the greatest regard should be paid to this point. We always find double span houses, where the plants are near the glass, and the light can reflect all around, grow the best specimens, and produce the greatest amount of flowers with brilliancy of color. Owing to our perverse climate, however, it is not always practicable to employ such unless they be sunk somewhat below the surrounding level, on account of the influence of our dry and frigid winds, and the extra amount of artificial heat (which at all times is only a necessary evil) that is required to raise the temperature to the desired height, and followed by a corresponding dryness of atmosphere, unless a large quantity of water is flooded around.

The different houses in use for ornamental plants are technically known as Cold Pit, Forcing Pit, Greenhouse, Intermediate House or Warm Greenhouse, Conservatory, and Stove; and this last may be subdivided into Moist and Dry.

The *Cold Pit* is merely a preservatory for those plants which need to be protected from severe frost, without the expectation of flowers through the winter. It ought to be built below the ground level, or else a thick bank of turf placed all around the outside up to the top, which is composed of sashes supported on rafters fixed into a framework of timber. Such a house will answer for Camellias, the tender Roses, Violets, Acacias, Oleanders, Myrtles, Laurustinus, Verbenas, Scarlet Geraniums, and many of the general bedding-out plants; but it ought to be understood that a comparative reduction of water at the roots, and also in the atmosphere, should be maintained in accordance with the hibernation of the inmates.

The *Greenhouse* is expected to furnish flowers at all times of the year, and also keep the plants in health and a growing condition; which, of course, makes it the most generally needed, and when only *one* is desired, this is that one if flowers are to be produced in the winter season. Artificial heat is required in this house, but the temperature may always be kept low in the night-time. The general range may be from 40° to 45° in the night, with a rise to 60° or 70° with sunlight. Light ought to be a first consideration in this house, and as a very high temperature is not desirable, the double span may be adopted in all cases. In connection with this, the Warm Greenhouse becomes a part, the only difference being, that a temperature from

five to ten degrees higher should be maintained. This, however, makes a large item in the extra variety of plants that may be cultivated with satisfaction, and the production of a considerably greater quantity of flowers. Where the means are limited, it will always give greater satisfaction to have a division in the centre of the house, from front to back, and the heating apparatus so arranged that one or both apartments may be worked at pleasure. Even on the smallest scale this can be accomplished, and a trifling mechanical ingenuity only is required to carry out the suggestion. Among the plants which may be grown and bloomed in the winter, in this arrangement, are the many varieties of Camellia, Erica, Pelargonium, Abutilon, Acacia, Azalea, Burchellia, Fuchsia, Cytisus, Heliotrope, Roses, Habrothamnus, Melaleuca, Poinsettia, Begonia, Bignonia, Salvia, Rhododendron, Mignonnette and many other annuals, particularly those from California and Australia, Oranges, Cape Jasmines (Gardenia), Kennedya, Jasminum, Bouvardia, many of the Orchids, besides others, of which this list is only a tithe.

The *Conservatory*. In this house the plants are generally planted out either in beds on the ground level, or artificially arranged mounds and rock or rustic work, with climbing vines suspended from the roof and upper parts. It may, in fact, be considered as a tropical forest in miniature, with the advantage of greater variety than would be found in any native locality, and the pleasure of seeing, at one view, the most beautiful vegetable productions of the warm regions of both hemispheres growing in their natural luxuriance. This house ought to be the grandest feature in any ornamental plant establishment, combining architectural nobleness, unity of appearance with the mansion, and intelligent arrangement in every detail ; consequently, where the whole of this cannot be carried out, it is better to be content with structures of more practical utility.

The *Stove*. The Plant Stove is an accommodation for intertropical plants, the real beauty of which far excels those of cooler regions ; and, as this structure is destined for the culture of such plants as grow in climates that are continually warm, a greater command of heat is necessary than is sufficient for the ordinary greenhouse, the inmates of which are not injured even though the thermometer should sink occasionally near to the freezing point. We may admit that there are many plants indigenous near the equator that will flourish, and only require protection, in the winter, from extreme frost; but such are, without exception, from elevated table lands, or high up in the mountains, where the temperature is very different from what it is near the level of the sea. By stove plants, then, is meant those which are naturally found in the lower tropical regions, where an even and high average temperature prevails throughout the year. If we take, for example, that part of the Indian Archipelago, from which many of our finest stove plants have been brought, we find that the extreme range throughout the year does not differ in the shade more than about 15°, and exposed to radiation only amounts to some 25°, and as the highest seldom exceeds 86° and the lowest 60°, we have a good index for the extremes that may be safely accepted in the Plant Stove. So far of artificial heat and a general temperature ; but we may make some exception in the case of sunshine during the summer months, when the thermometer may be allowed to rise to 95° with benefit. It will be readily seen then, from this, what is the main difference between the Stove and Greenhouse, in one or the other of which may be grown suc-

cessfully all plants that may be introduced, and are too tender for outdoors in our northern climate. The following genera are a few that are suitable for this department: Torenia, Strelitzia, Justicia, Medinella, Melastoma, Pentas, Pitcairnia, Pleroma, Russellia, Stephanotis, Allamanda, Plumbago, Ixora, Gesnera, Achimenes, Gloxinia, Begonia, Æschynanthus, Solandra, Aphelandra, Ardisia, Bignonia, Clerodendron, Dipladenia, Hexacentris, Hoya, Ipomœa, Quisqualis, Caladium, Cissus, Croton, Dracæna, all the tropical Orchids, and many other novelties, including Ferns and Lycopods.

The *Dry* and *Moist* stove have been alluded to. The difference between the two is in the peculiar dry or moist atmosphere that is required for various families of tropical plants at all times; or, as in the case of some, at different periods of their growth. For example, most of the succulent plants, such as Cactæa, Stapelia, Aloe, &c., are found indigenous to dry regions, sandy deserts, rocky elevations, and such like places. These require the Dry Stove, if tropical. While those which are found in marshy grounds and low situations, often among dense forests, and other situations of like character, are better suited in the Moist Stove. This house is also the home of the beautifully grotesque family of Orchidaceæ, in the growing season; while the former will concentrate the previous development during the period of rest, and thereby insure a certainty of flowering. Here, also, may be located, in suitable compartments, such aquatics as Victoria Regia, Nelumbium, &c.

The *Forcing Pit* is an auxiliary or helper. It ought to be built similar to the Cold Pit, with the addition of a good command of heat. The object in this house is the forwarding of flowers, and as an accommodation for many tender plants, which are, during a part of the season, unsightly, from their nakedness, or perhaps dormant state. In any establishment of any pretension, the Forcing Pit is the most useful structure on the place, as it not only becomes a receptacle for plants, until they are in full bloom, and fitted for display in the other houses, but also a hospital for any that may be sickly or out of health. It is also useful for propagation, and may be turned to a great number of useful purposes.

The above few remarks only embrace a superficial explanation of the various structures known as plant-houses; but at some future time I may treat the subject more comprehensively, if you think it of service.

A HOUSE IN THE WEST.

We present herewith a wood engraving of a first-class mansion erected at Cottage Hill, Illinois, near the Chicago and Galena Railroad, and eighteen miles from Chicago, by Thomas B. Bryan Esq., an enterprising and esteemed citizen. The situation is on a rise of the Prairie, and enjoys a most extensive view. It is surrounded by newly-planted trees in thousands, and we are greatly mistaken if the example set by Mr. Bryan, of sheltering his grounds, so effectually as he has done, does not produce a lasting effect on the mind of Illinois; its inhabitants may here very soon see the results of planting evergreens, and be made aware of what comfort may result.

The house is well shown in the picture. It contains: 1st, a spacious Hall; 2d, a large Parlor; 3d, a spacious Drawing-room, with a fine view;

"BIRD'S NEST." THE RESIDENCE OF THOS. B. BRYAN, Esq., NEAR CHICAGO, ILL.

4th, a Library communicating with the latter and overlooking the entire estate of 800 acres; 5th, Dining-room; 6th, Billiard-room and office combined; 7th, Plant Cabinet, communicating with Billiard-room and Dining-room; 8th, two Kitchens, Pantries, &c. &c.

There are seven chambers, with ample closets, a bath-room, and a room for the Solar Microscope, a remarkable instrument which was exhibited at the World's Fair in London, and took the prize as the best instrument.

A large Grapery communicates with the Billiard-room, and a Greenhouse and Gymnasium add interest to the establishment.

CULTIVATION OF GLOXINIAS.

If there exist now, among the rich collection of improved European greenhouse plants, any new ones which surpass old-fashioned kinds in beauty of foliage and flowers, the Gloxinias undoubtedly are conspicuous.

These charming Gesneriaceæ, introduced into France in 1835, were forgotten for some years. Several intelligent horticulturists, however, gave careful attention to them, and since 1852 nearly a hundred varieties have been obtained from numerous beds, as the result of the care given them.

Until now the culture of these plants has not always succeeded with those who have attempted to grow them, and some have been discouraged after ineffectual attempts. My own experience, however, has proved to me, that the culture is not difficult, and that the plants themselves are not delicate.

I have tried them in pure vegetable mould, and in mixed soil, and the results have been equally satisfactory.

Towards January, the most favorable season for the repotting of Gloxinias, they are placed in 2-inch pots, in a peat soil; these pots are placed on shelves in the greenhouse, away from too much moisture. Six weeks after, when the plants have leaves, and the roots are too much restrained in these pots, they should be repotted in 4-inch pots, in a powdered peat soil; for Gloxinia roots, being very slender, more easily penetrate the earth, and are less likely to suffer from moisture, yet the precaution of filling the bottom of the pots with broken pieces must be taken before placing the plants in them.

If it be desirable to flower them early, they may be left, without any inconvenience, in these pots, depriving them of nourishment; the sap, absorbed by the leaves, and restrained in its progress, obliges the buds to be fully developed, and produces flowers earlier. If strong plants are wanted, a third repotting may be given them, and thus retard the flowering a month; but in revenge the flowers and leaves will rival each other in vigor and beauty. The flowering continues three months, and as fast as faded ones disappear, fresh ones follow.

Towards September vegetation is slackened; the watering may be gradually discontinued, and through the summer they will scarcely need attention, since Gloxinias only want water when thoroughly dry; it is well to sprinkle the leaves on warm evenings.

From the 15th of September to the 1st of October, the roots should be left

to dry, laid in pots by the beds, mixed with a dry peat soil, and then ranged along the greenhouse shelves, or in a suitable room, protected from frost.

Cuttings may be made at any time of year, but May is the best time. With a leaf, twenty-five or thirty may be made, by dividing all its membranous parts; the best and most usual way is as follows: take a leaf, cut around the base of the petiole, place it in a cutting pot under glass, in a propagating house. Six weeks after, the plants are taken up; repot them in 2-inch pots, keeping them so till September, at which time they are to be treated as before mentioned, always taking care to pinch the leaf, which will be forced then to make a fresh bud. A Dutch greenhouse is especially suited to Gloxinias, of the temperature of 77 to 110 degrees. The strong rays of the sun will be intercepted by the trellis or paling; when the temperature exceeds 110 degrees, open the greenhouse doors.—*Revue Horticole.*

WHISPERINGS AT OUR HORTICULTURAL SOCIETY.

BY FOX MEADOW.

How beautiful and pleasant are the thoughts of the past, when the latter has been properly directed in our walks and labors through life. The reminiscences of good invariably yield consolation, and thus we live, so to speak, not in the present, but in the past and future. So it is, Mr. Editor, with the good horticulturist; his life, his existence and aspirations, seem also to be wrapped up in the past and future. What he has well done gives him consolation, and that which he intends *to do* carries him and his toils on cheerfully. He sometimes meets with downfalls, and things look dark and dreary, but he also knows that

"Spring reblooms, though winters blight,
And day succeeds the longest night."

It has been particularly interesting to me to witness the manifest spirit of determination that exists among amateurs to develop that which is considered perfection in their vegetables, fruits, and flowers. The Horticultural Exhibitions around the city of New York this season have been a credit to all interested in them. That prosperous and thriving institution at Brooklyn never looked so gay with its flowers, and tempting with its fruits, as in September last. The hard and soft-wooded plants were the products of good plantsmen, and to him who glories in the sight of a good orchid, those brought from Jersey City by C. Vanvoorst, Esq., were just the varieties to create wonder and admiration, and would have been equally meritorious had they been placed on a table at Chiswick or Regent's Park. But, thanks to the indefatigable exertions of the worthy president of this society, J. W. Degrauw, Esq., for what it now is—and I would there were more such gentlemen. Then your western prairies would bloom with roses of deeper hues—a knowledge of fruits and flowers would be taught in their schools, and gardens spring into existence filled with luscious fruits. All should take an interest in Horticulture, and Agriculture too, for these exhibitions are to society the same as the press is to the world—*a principle of life.*

We remember standing near two gentlemen at the exhibition in Brooklyn

last June, who were discussing the merits of some Pelargoniums there for competition. One remarked that he could not succeed in flowering them as his neighbor Mr. C. did. "I think I know where you miss it," replied the other. "Aha!" "Yes; and if you think it won't tax your patience too much just now, I will begin at the beginning and tell you, and then perhaps we shall be better understood.

"First, we shall suppose you to have some old plants on hand in the spring of the year, say March; we then make a selection of the cuttings, and in doing so select young, healthy, short-jointed wood, take the leading points four to five joints or eyes long, pot each cutting in a small or thumb pot, and use very sandy loam, and plunge them in a moderate bottom heat, and keep close. With due attention to watering, &c., two weeks will root them. Then repot them into a four or five-inch pot, and nip out the point of the young plant, which will induce it to burst the eyes at the axil of the leaves to form the first branches of the plant. The next part of the business is to understand that we must not make a stove plant of the Pelargonium. Give them plenty of air and light; a shelf near the glass roof is a good situation. The young plant is now growing pretty freely, and we allow the young shoots to grow out and over the edge of this four or five-inch pot, and as they grow we use small pegs and peg the young branches or shoots down flat on the surface of the pot, and divided equally. This arrangement should be properly attended to, and is the foundation of what is to be a specimen plant. As soon as the young shoots have got over the edge of the pot, nip out their points, and repot into a size two or three times larger; but remember not to allow the young shoots to get ten or twelve inches long before you nip out the points, or the plants will forget that they are intended for specimens, and also omit to burst the proper or base eyes; and when you have finished the potting process, there will be most likely a vacancy in the centre of your plant. You understand me, sir; that if the young shoots are allowed to grow and make three or four eyes or leaves in length, you must make them burst all the eyes they make, for the simple reason that you want the branches. Now, by following this process of potting, stopping, and pegging down, from the month of March up to September, you can grow the plant to almost any size you think proper; but we think a twelve-inch pot is large enough, and into that pot it should not go after September, if you expect to thoroughly flower it the next season. The object in potting at this period simply is, that the plant may get its pot full of roots—pot-bound, as the gardeners call it—and when pot-bound, the plant cannot grow so fast, consequently ripens well all the wood or branches it has made, and when we get well-ripened wood—*you* know what the result is—plenty of good fruit. Well, sir, so it is with flowers. Ripen the wood well, and get them pot-bound, and they must then flower or die.

"By this process of growing the Pelargonium, no sticks are required. Through the winter the plants should be near the glass. Give as much air as convenient, and the state of the atmosphere will allow, and keep them comparatively dry; in fact, we have often seen them so dry that the foliage would indicate the want of water, and without injury. In reference to the compost after the first potting, they seem to flourish in strong sandy loam, made rich with well decomposed cow manure. The pots should be thoroughly drained. When the month of April comes, then let the plants grow; give plenty of water, and let it be good strong manure water, and you will see the color

of the foliage change to dark green with a texture worth looking at, and heads of bloom rising like the morning sun to expand into noonday brilliancy. Now in closing these remarks, permit me say, if you desire to have good healthy plants—dwarf and stocky—bloomed without a shower of sticks, and profusely flowered, you must not allow your young plants to remain pot-bound and dried up for weeks together in a three-inch pot, smothered and eaten up with green fly, but must begin at the beginning to promote and carry completely through the whole growth without check. Grow no green fly. Give plenty of air. No coddling up. No ice-water, and last, though not least, *no potting in the spring*, and then your Pelargoniums will flower to your heart's content, and the admiration of all who behold them.

"Come, sir, I see I am getting tiresome; we will go over to that large table and look at those delicious pears from Ellwanger & Barry, grown on dwarfs, that *some folks say* WON'T NEVER DO."

THE ANŒCTOCHILUS.

In a former number of the "Revue Horticole," we spoke of a plant, remarkable for the beauty of its leaves, the *Begonia Rex*, the culture of which is rapidly increasing, notwithstanding the recent date of its introduction into Horticulture. At present, we wish to entertain our readers with two plants, celebrated for the beauty of their leaves, and equally worthy of being sought out by amateurs. These orchideous plants belong to the genus *Anœctochilus* and *Physurus*.

On the mountains of the Moluccas and East Indies, shaded by large trees, in a moist and foggy atmosphere, is found a little plant, with leaves of an astonishingly brilliant color. The natives call it *Petola*. This pretty plant was brought to Europe by travellers, and has been cultivated in our greenhouses for some years. Afterwards some similar plants were found, and M. Blume established from it the genus *Anœctochilus*.

Although most of the orchideous plants of our greenhouses are distinguished principally for the brilliance of their flowers, those just now claiming our interest derive their beauty from the rich and brilliant color of their leaves, the flowers being insignificant.

America, and especially Brazil, has furnished us with another Orchid, which, in its downy appearance and the veining of its leaves, resembles very much the Anœctochilus; it is the Physurus of L. C. Richard. The Flora of the neighborhood of Paris has been enriched for five years with a little Orchid, the *Goodyera repens*, discovered in the Mall Henry IV., not far from the Castle of Fontainebleau. The *Pogonias*, two species of which have been very lately introduced into horticulture, belong to the same, and came originally from Java and the East Indies.

It is likely that the culture of the Anœctochilus and of the Physurus will soon be greatly increased, because already in many places these plants have been cultivated with success in portable glass cases. M. Reichenbach, the younger, the celebrated observer of Orchids, gives us a favorable proof of success in an experiment made with them in a room of Dr. Richter's, at Berlin.

The situation and temperature required for our native *Goodyera* may be

a guide in the treatment of similar plants. This grows under moss in a mixed soil, mostly made of vegetable matter ; a certain amount of continual and equal moisture, and an atmosphere charged with water, are indispensable to it.

The pot to receive the plant should be half filled with broken pieces of old pots, in order to drain it ; the other half may be of a mixture of peat, charcoal, and sphagnum ; the surface should be covered with moss. Finally, cover the pot with a bell-glass, which will give the plant an atmosphere charged with moisture. Morning and evening the inside of the glass should be wiped, to prevent drops from injuring the leaves, which they would gradually do. During winter they require more rest and less moisture ; at this time we expose them to a temperature of 55° to 61°, and in summer 68° to 77°. They should always be carefully sheltered from the direct rays of the sun.

ANŒCTOCHILUS LOBBIANUS, NATURAL SIZE.

As the object is to obtain perfect leaves, the flowers should be destroyed as soon as they appear.

The Anœctochilus and Physurus are nearly allied, the difference consisting in the color of the leaves, and the countries they come from. The former, originally from the East Indies, has a more decidedly downy appearance, and the veining is usually of a golden red color. The Physurus, on the

contrary, belongs to America; its leaves are of a brilliant green color, and silver veined.

The *Anœctochilus Lowii* of the gardens, described by Mr. Lindley under the name of *Cheirostylis marmorata*, and by M. C. Morren under that of *Dossinia marmorata*, was found in Java by Mr. Low, and introduced into Europe in 1847. It is especially pretty; the under side of the leaves is of a deep soft green color, the veining of a golden purple.

The *Anœctochilus intermedius* of the gardens resembles the preceding plant.

The *Anœctochilus Lobbianus* is known under several names—*Anœctochilus xanthophyllus, Anœctochilus latomaculatus*. According to some authors, the Anœctochilus Roxburghii of Lindley and the Chrysobaphus Roxburghii of Wallich are the same plant. The one which we show in the plate to our readers, received its name in honor of Mr. Th. Lobb. He introduced it into Europe from Java. Its leaves are oval and pointed, their surface of a dull green, the middle of a yellowish red. The lines which trace it all over are of brilliant gold. The under side is red.

The *A. setaceus* of Blume, also called *A. aureus*, is originally from Ceylon. There are still two more species, the *A. argyroneurus* and *A. striatus*.

In our horticultural establishments there are two species of the *Physurus:* the *P. pictus* of Lindley, from Brazil, with lanceolate leaves and silver nerving; and the *Physurus argenteus*, differing from it in having oval pointed leaves.

All the plants spoken of above require the same treatment, and it is very desirable that their culture should be extended, especially if, as is probable, these plants may be adapted to Wardian cases, which would be a graceful application of them.—*Revue Horticole.*

CHARCOAL AS A MANURE.

Manures may be beneficial to plants by affording carbonic acid gas to their roots. Animal and vegetable matters evolve this gas while putrifying; but we are not aware of any manure that absorbs it from the atmosphere, so as to be for that reason beneficial to vegetation. Lime attracts carbonic acid gas from the air rapidly, but combines with it so strongly, that it is useless to the plant until the carbonate of lime so formed is imbibed and elaborated by that plant.

It is to its power of gradually forming carbonic acid gas that *charcoal* partly owes its value as a manure. The chemical operation of charcoal, when employed for this purpose, is by no means so well understood as that of most other fertilizing additions to the land. That the carbon of the charcoal operates so beneficially upon plants, among other modes by a gradual combination with oxygen, hardly admits of a doubt. Liebig gives the results of a series of experiments by Lukas on the use of charcoal as a manure, which seem to corroborate his opinion. From the facts which these chemists, however, adduce, it is evident that the beneficial action of charcoal, as a fertilizer, depends upon the presence of other substances besides carbon. Liebig notes (*Organic Chem.*, p. 62) that "plants thrive in powdered charcoal, and may be brought to blossom, and bear fruit, if exposed to

the influence of the rain and the atmosphere. Plants do no not, however, attain maturity under ordinary circumstances in charcoal powder when they are moistened with pure distilled water instead of rain or river water. Rain water must, therefore, contain within it one of the essentials of vegetable life ; and it has been shown that this is the presence of a compound containing nitrogen; the exclusion of which entirely deprives humus and charcoal of their influence on vegetation." It is ammonia, to whose presence in rain water Professor Liebig thus refers, in whose valuable work (p. 207) the experiments of Lukas will be found. From these we learn that in a division of a low hothouse, in the Botanic Garden at Munich, a bed was set apart for young tropical plants ; but instead of being filled with tan, as is usually the case, it was filled with powdered charcoal, the large pieces of charcoal having been previously separated by means of a sieve. The heat was conducted by means of a tube of white iron into a hollow space in this bed, and distributed a gentle warmth, sufficient to have caused tan to enter into a state of fermentation. The plants placed in this bed of charcoal quickly vegetated and acquired a healthy appearance. As always is the case in such beds, the roots of many of the plants penetrated through the holes in the bottom of the pots, and then spread themselves out ; but these plants evidently surpassed in vigor and general luxuriance plants grown in the common way; for example, in tan.

M. Lukas then gives a list of several of the exotic plants upon which charcoal appears to have produced the most beneficial effects. It appeared also to promote the rapid germination of seeds. He then proceeded to try the effects of charcoal when mixed with vegetable mould, all of which answered very well. "The charcoal," continues M. Lukas, "used in these experiments was the dust-like powder of charcoal from Firs and Pines. It was found to have most effect when allowed to lie during the winter exposed to the action of the air. In order to ascertain the effects of different kinds of charcoal, experiments were also made upon that obtained from the hard woods and peat, and also upon animal charcoal; although I foresaw the probability that none of them could answer so well as that of Pine wood, both on account of its porosity and the ease with which it is decomposed. The action of charcoal consists primarily in its preserving the parts of plants with which it is in contact, whether they be roots, branches, leaves, &c., unchanged in their vital power for a long space of time, so that the plant obtains time to develop the organs for its further support and propagation. There can scarcely be a doubt, also, that the charcoal undergoes decomposition ; for, after being used for five or six years, it becomes a coaly earth. It exercises likewise a favorable influence by absorbing and decomposing the matters excreted by the roots of plants, so as to keep the soil free from the putrifying substances, which are often the cause of the death of the spongioles. Every experiment," concludes M. Lukas, "was crowned with success, although plants belonging to a great many different families were subjected to trial."—(*Ibid.*, p. 211.)

Professor J. F. Johnston (*Elm. of Ag. Chem.*, p. 142) recognizes the good properties of charcoal as "a valuable mixture with liquid manure, night-soil, farm-yard manure, ammoniacal liquor, or other rich applications to the soil." And as he observes in another place, when speaking of the fertilizing portions of farm-yard drainage, (*Trans. High. Soc.*, 1846, p. 190,) "The only substance at present known, by which the separation of all the valuable in

gredients from liquid manure can be fully effected, is animal charcoal. A sufficient supply of this substance, when intimately mixed with the liquid manure, will take up nearly the whole of the saline and coloring matters it holds in solution, will carry down the substances it holds in suspension, and will leave the water nearly pure and colorless. The refuse of the prussiate of potash manufactories will have this effect, and what remains when ivory-black is digested in spirit of salt (muriatic acid) will do still better; but this kind of charcoal is neither cheap nor abundant, and, therefore, cannot be recommended for general use. The refuse animal charcoal of our manufactories is now sold for manure at the price of several pounds a ton: either those who sell it, or those who use it, might render it still more valuable by causing fermenting liquid manure to filter through it before it is applied to the land.

"But other kinds of charcoal possess this property to a certain extent: wood charcoal, reduced to powder, charred sawdust, and charred peat, are all capable of being used with advantage in extracting the ammoniacal and other salts, which give its value to the liquid of our farm-yards. Experiment has shown that when filtered through a bed of such charcoal, the liquid escapes without color, and almost without taste, while the charred peat or sawdust is converted into fertilizing manure. A great portion of the loss now incurred may be prevented by the use of such kinds of charcoal; and the fertilizing substance may, through their means, be applied to our crops at seasons of the year for which, in their liquid form, they are not suited. It is even capable itself of yielding slow supplies of nourishment to plants; and it is said in many cases, even when unmixed, to be used with advantage as a top dressing. In moist charcoal the seeds of the gardener are found to sprout with remarkable quickness and certainty, but after they have sprouted they do not continue to grow well in charcoal alone."—(*C. W. Johnson's Modern Agricultural Improvements.*)—J., *in Cottage Gardener.*

TACSONIA MANICATA.

A PLANT was distributed a few years ago by the Horticultural Society under this name, but I do not hear of it as having flowered in many places, nor have I ever seen it except in my own greenhouse. It is nevertheless by far the most splendid in color of the splendid genus Passiflora, and moreover a hardy greenhouse climber. Neither *Passiflora princeps* (racemosa), the Brazilian stove species, nor *P. Le Michauxii*, nor *P. Kermesina*, all stove plants though they be, equal in color *Tacsonia manicata*. Its color is intense orange scarlet, so identical with the average scarlet Geranium, that petal being laid upon petal you can hardly distinguish a shade between them, while the rays, which are nearly black, enhance this color, and give the effect of a scarlet Anemone. The flower is nearly the same size as *Passiflora cærulea*. It is nothing like so compact as the older Tacsonias, and may be flowered in any ordinary greenhouse, and it is so hardy that its wood survives even when run through the iron bars of the lights within an inch of the glass in a cool greenhouse. Its only peculiarity is in pruning. It flowers, not, as *Passiflora cærulea*, on the wood of the year, but upon laterals produced on that wood, and the most successful treatment is to shorten the

principal shoots in August, when it forms laterals which produce flowers the following spring. I suspect that in a warmer house than mine it would flower early in spring or perhaps in autumn, but as the thermometer falls with me to 35° or 36°, it sometimes loses some of its buds which are formed in autumn; but even thus, enough remains to make the plant very gay in the spring, and, well cultivated, it would be by far the most gorgeous climber we know.—*J. R. S. O., in Cottage Gardener.*

LADDER AND BASKET.

The arrangement which we give in the accompanying design, offers a new and convenient plan of a basket, containing the nails and necessary utensils for paling up a garden wall. This basket is of willow, oblong, about 16 inches long and 6 wide : its depth is 4 inches, and it is divided into two compartments. By means of two hooks 3 or 4 inches long, it is adapted to the bars of a common wall ladder, that is to say, to a 10 ft. ladder, the extreme ends of the bars provided with two pins 8 inches long, serving to separate it from the wall. The hooks fastened by iron wire to one side of the basket, necessarily must be so far from the rounds as not to press the foot of the workman. The basket, as may be seen, can be lifted, at will, from one step to another, and it is held, in the gap, between the ladder and the wall, by the projecting pins. It is destined to replace with advantage the semicircular basket, which is now habitually used for the purpose, and which is very troublesome when working on the ladder.—Chardon Reigner, *Horticulturist at Coulommiers*, in *Revue Horticole.*

(It is also adapted to another purpose. By connecting an old Champagne basket without the top in this way to ladders, it will be found very convenient for gathering grapes from walls or fruit from trees.—*Ed. H.*)

PROPAGATION OF PLANTS BY CUTTINGS.

BY W. S.

This is one of the most common and universally practised modes of extending plants. A cutting is simply a part of a plant taken off and placed in a position to form roots, and become in all respects a living representation of the original from whence it was taken.

The peculiar constitutional conditions which will render a plant favorable or otherwise for this method of propagation, has not been ascertained, and the subject is well worthy of attention by physiologists. While many plants, such as the willow, will throw out roots from cuttings taken off almost at any state of maturity, there are also many that are difficult to increase by this mode, even under the most favorable circumstances known to cultivators.

Choosing Cuttings.—So far as the simple production of a plant is concerned, it matters but little from what part the shoots for cuttings are chosen. Those, however, that are taken from the extreme points of plants are more likely to flower early, and with some plants a more bushy and dwarf habit of growth will prevail for a time, but no permanence of this habit will be obtained by this means. Cuttings taken from side branches frequently form plants having a tendency to horizontal growth, and in some cases it is necessary to bend such shoots close to the soil, in order to encourage a fresh growth from the base, before healthy, upright growing plants can be secured. These peculiarities are not constant, and are not considered important by propagators, although florists occasionally find them useful for particular purposes.

When a seed germinates, the first effort of the young plant is to send a root into the earth; but unless this is immediately followed by the formation of a stem and leaves, the root will speedily perish. The seed possesses within itself the necessary ingredients for the first stage of germination; but as soon as the rudimentary root strikes downward, and the young stem arises and unfolds its cotyledons, the plant thus newly brought into existence changes its mode of growth, and its future increase depends upon the presence and action of leaves. The root, therefore, although it apparently precedes the leaves in germination, is dependent upon leaves for its previous existence in the seed, as its further extension is wholly dependent upon the coöperation of the foliage in the growing plant.

Recognizing these well-known facts in the selection of branches and shoots for cuttings, it follows that roots will be most readily produced when there is a due portion of stored-up matter in the wood, and the root formation will be facilitated when the sap is in motion, and all the processes of growth in full operation.

It is thus evident that there is a certain state of maturity in all plants most favorable for propagation, and if we either anticipate, or go beyond this period in the selection of shoots, additional care will be required in their management, and, with some plants, rigidity of maturity may render the root-forming process altogether impracticable.

As already observed, some plants seem so strongly imbued with the principle of life, that shoots of any age will root with great certainty, even if they are taken from the plant during its season of rest; with the majority

of plants, however, greater care is necessary; among these nearly all evergreen trees and shrubs may be included.

Of this class the most suitable shoots for propagation, are small points of the current year's growth that have assumed a brownish color indicative of approaching maturity; a few leaves should be retained to assist the development of roots.

Plants of a succulent nature, and such as are technically termed "soft wooded," are generally propagated by cuttings taken from the points of growing shoots, the peculiar treatment of which will be further alluded to.

Preparation of Cuttings.—In preparing a cutting we are guided in a certain measure by the fact that roots form with greatest facility from joints or buds. It is true that a *callus* will form on the cut surface, although the cutting is deprived of all buds but those intended for upward growth, and roots will frequently protrude from all parts of the inserted stem, but the accumulation of tissue will increase with greater rapidity when the section is made immediately below a bud. In cutting the section, great care is requisite that the part is not bruised, which tends to decay; cutting with scissors should therefore be avoided; a smooth, clean cut with a sharp knife is best.

The necessity of retaining leaves on cuttings depends upon their maturity; if soft and slightly charged with organizable matter, the leaves continue to perform their functions and assist growth. It would be difficult to define the quantity of leaves that ought to be retained, and although there is no doubt that they facilitate the formation of roots, yet they involve a more skillful management of the agents of vegetation during that process.

With plants that root slowly the cutting may undergo a preparation before removal from the parent stem. This is effected by ringing the shoot at the intended point of separation, a callus will form round the upper edge of the ring, from which roots will emit when the cutting is removed and inserted in the soil.

(*To be continued.*)

LOVE OF NATURE—BIRDS—THE CHICK-A-DEE.

BY C. N. BEMENT.

It is impossible that we should be other than an admirer of Nature. In all our solitary rambles, whether upon the wild and lonely hill-side, or in the heart of the pastoral valley; at the edge of the mirror-like lake, the bank of the babbling brook, or along the border of the mountain rivulet—our eye is always filled with beautiful and picturesque objects. Our ear soon becomes familiar with the light carol of every bird which inhabits the thicket or the forest; and our eye is soon made acquainted with the whole lovely family of flowers, which enamel the earth, and enrich the air with their perfume. There is not a wild flower that nods to us from the top of the verdant bank, or the vine-covered precipice, or a bird that salutes us with its voluble overture from its leafy dome, that we cannot recognize and call by name.

We have ever been lovers of birds, the denizens of the air. They have ever appeared to us almost too fair and pure for this grovelling, sensual world. In our boyhood we were taught that it was wrong to harm some

kinds of birds; but there was a large class that were proscribed as doing injury to the farmer, (while they were innocently employed in seeking their daily food,) and he that killed the most was the best fellow. For many years past we have supposed that the birds were rapidly decreasing, for their numbers in the fields and groves were few. A few years ago we moved on to Springside, our present habitation, where the cottage is surrounded with beautiful trees, and we soon found the birds made it their home, as they arrived from their southern journey. They were not allowed to be disturbed, and they built their nests and reared their young in the immediate vicinity of the cottage. In the month of June more than twenty varieties of birds made their homes on the premises, to whose songs we could listen in the lawn and surrounding fields. No birds are allowed to be killed on the place, not even the saucy and impudent Cherry-bird that steals our fruit, or the Sparrow that robs us of our strawberries; the consequence is, their numbers have greatly increased.

Treat the birds kindly, and they will become almost domesticated—follow the plow and pick up every straggling worm or grub that is turned up from his dark dwelling. For doing so they deserve well of the farmer, and no honest man will cheat them out of their part of the crop, much less kill them for trying to get it.

There is reason to believe, that although most birds live on a variety of food, yet each particular species of birds have a greater partiality or fondness for some particular kinds of insects or reptiles. This evinces *a plan*. Many species of birds follow civilization. The same may be said of several kinds of insects; or, at least, they multiply under its influence. Hence the birds follow, in order to reduce the number of insects. This also evinces *a plan*. Let us then study and observe. No man can study "Nature's works and ways," without becoming wiser and better.

"Birds," says an elegant writer, "are the best of entomologists. No ornithologist ever hunted specimen birds with more industry and perseverance than is exhibited by birds themselves in their researches. They disport in the air, penetrate every nook and corner of thicket, hedge and shrubbery; they search the bark, pierce the dead wood, glean the surface of the soil, watch for the spade, trench, and follow the plowman after worms and larvæ. A single bird in one season destroys millions of insects for its own food and for that of its own nest. No computation can be made of the insects which birds devour.

"Birds are the best of scavengers, the nimblest hunters and adroit butchers. They have no Grahamite scruples to agitate this worm and bug-loving tribe. They do not show their teeth to prove that they were ever designed for meat. They eat what they like, wipe their mouth on a limb, return thanks in a song, and wing their way to a quiet nook to dose or meditate, snug from the hawk that sails about in the air above. To be sure, birds, like men, have a relish for variety. They are the best of pomologists. We charge every man and boy with positive cruelty and dishonesty who drives the birds from the garden in fruit time. On investigation it has been discovered that they never disturb sound cherries, and none but those that have worms in them." We say, therefore, *spare the birds*, and they will destroy millions of your worst enemies—the worms.

We are not writing the history of birds; we are not writing methodically; we aim at no order. Ours is the humble task of recording a few observa-

tions called forth by the phases of the months; we may therefore be pardoned for introducing the little birds, our favorites, whose visits to our section appear to be irregular.

Look up into that branch whose beauteous spray sweeps to and fro, responsive to every breathing of the wind. See you that merry, lively little Chick-a-dee, hopping about from branch to branch in the ecstasy of joyous freedom—now pecking pertly at the dun-colored cuticle of the tree; now seizing coyly in its beak some grub or aphide? Most varied are the attitudes which they now assume; not an instant of repose do they know; restless, creeping, calling, pendent, but ever in progress, advancing with the cautious watcher. Beautiful birds are the Chick-a-dees, whose actions we now stop for a moment to contemplate, and who are now displaying their characteristic restlessness and vivacity in rose-bush and fruit-tree, to obtain a supply of hibernating insects. Most graceful and easy are their actions. Hovering on the wing, ever and anon lightly darting away and as lightly returning.

Oh! it is not the deed of a noble heart which can ruthlessly slaughter the little feathered songsters of our lawns and groves—those brilliant Psalmists of Nature, who are ever reiterating their jubilant songs of praise, and thanksgiving, and love—whose sweet, melodious voices come wafted like incense to us upon the summer zephyrs, and, floating onward and upward through the grand old woods, are caught and reëchoed with new power and new beauty, and varying tones, by myriad tuneful chorists, until the air seems filled with the very essence of harmony, and the embowered branches of the overspreading trees are converted into a grand orchestral temple.

We love little birds. We delight, when suffering, and care, and sorrow have left their impress upon our mind, or some dark shadow of Evil or Spirit of Gloom has crossed the brightest path of life, dimming our faculties, destroying our perception of enjoyment, and filling our very soul with the impress of Melancholy, to stroll into the woods, leaving the artificial world behind us, turning our backs upon our fellow-men, and shutting ourselves up in a close communion with the mysteries, and wonders, and beauties of Nature.

INARCHING.

The following practical observations on Inarching by separating the branch from the parent tree, and plunging the end of it in a jar of water, or planting it in the earth, will be interesting to our readers.

This method of inarching with the end of the detached branch plunged in a jar of water, or sunk in the ground, seems to have been long known, as Etienne Calville mentions it as early as 1803; and André Thouin describes it under the name of the "Kew Graft," which seems to prove that it came to us from England.

The following observations on the advantages to be gained by its adoption by amateurs and gardeners as a source of profit, are the results of a series of experiments made by us since 1842.

In 1850, we grafted for M. Mouchonnet, at Choisie-le-Roi, a double flowering peach-tree, an espalier six years old, which of course had never borne fruit. The bark was too rough and hard to admit of grafting in the usual

way, and we therefore tried our new method, and inarched with the branches of a kind of Grosse-Mignonne, putting two at the base of the tree close to the lowest limbs, and two others, which were to become the new branches.

The experiment succeeded perfectly ; and when the grafts had taken well, we cut off the branches in order to concentrate the sap ; and that year the shoots were 36 inches long, and the next they bore very fine peaches, a most agreeable surprise to the owner.

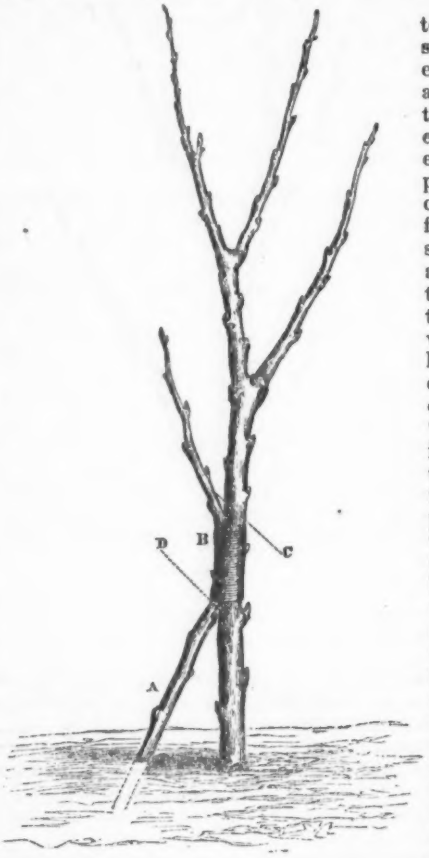


Fig. 69.

This success encouraged us to try to renovate the stocks of some old pear-trees, with the ends of the grafts in water ; and the result would have been the same if they had been planted in the ground. For this experiment we chose an old pyramidal pear-tree with branches from another tree measuring from 18 to 21 inches, which were sunk in the earth, in February and March, taking care to place them in such a way as to lead them to the spot where they were to be inarched. When the leaves and flowers appeared on the tree, we performed the operation as described in our "Méthode Élémentaire," leaving only four or five buds above the part grafted, and shaded it from the sun with a fold of paper. They all succeeded as well as those plunged in water. On examining the bases carefully, we found that the part that was in the water had produced a small excrescence, from whence sprung spongioles that had perished for want of nourishment. It was the same with those that had been sunk in the ground ; but in this case we attributed the death of the spongioles to the nature of the soil of Vitry and Choisy-le-Roi, which is not favorable to the growth of the pear-tree. The event justified our suspicions, for on mentioning the fact to an amateur from La Ferté-Gaucher, who was visiting our grounds, he made the experiment on his return home, and inarched the pear upon quince, and the peach upon the almond, planting the ends of the stems in the ground. These branches took root perfectly well, and

at our Horticultural Exhibition in the autumn of 1858, he showed pear and peach-trees inarched in the spring of the same year, having shoots as thick as one's finger, and three feet seven inches long, with a fine tuft of roots at the base of each. This interesting fact would have passed unnoticed if I had not made it my duty to speak of it while pointing out the advantages of this method of grafting: first, they graft their stock; and secondly, they obtain another healthy tree by cutting off the graft below the point of junction with the stock.

This result has never been obtained by budding the pear and peach-trees, although it has succeeded with the apple, for I have now several varieties of Calville and Canada, which I have watched for three years. These experiments prove that all our fruit trees can be reproduced *francs de pied*, (from cuttings?) if they are planted in a rich soil like that of "La Ferté-Gaucher," which is alluvial and very fertile.

Figures 69 and 70 show the details of the operation. A, 69, a branch planted at the root of the stock. A, 70, a branch plunged in water. B, the part of the branch bound to the stock. C, the upper cut, after the graft has set. D, the lower cut below the junction.

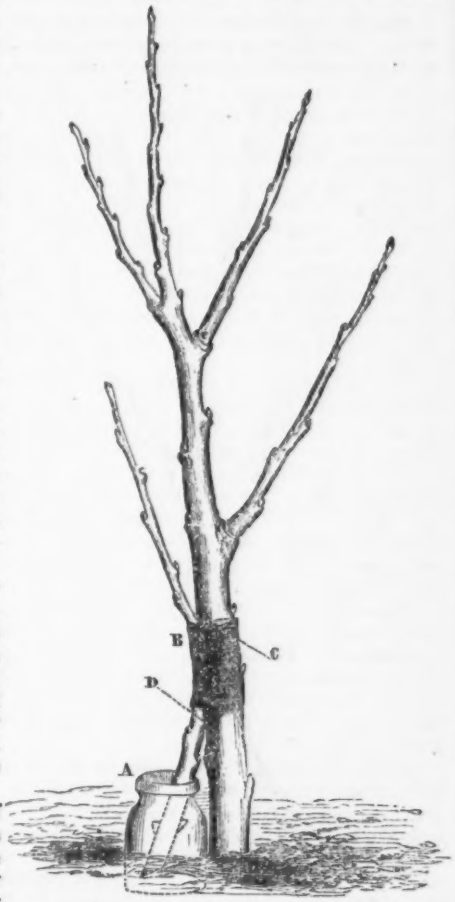


Fig. 70.

This inarching may be of great service to horticulturists and fruit-growers when the buds have been destroyed by severe frosts, as they grow with the gradual advance of vegetation, and the planted branches soon become bearing trees; and above all, it is useful to renovate and beautify the bare trunks of old trees; and these results are important not for fruit trees only, but for others.

We hasten to bring this subject to the attention of horticulturists, hoping to induce them to make experiments which may prove profitable.—*Revue Horticole.*

A FEW FINE ROSES.

BY A BUFFALONIAN.

The present seems to be a suitable time to make some observations on Roses, and compare notes respecting new or favorite varieties. These have so rapidly multiplied within a few years past, that an amateur, even of experience, can scarcely look at a modern catalogue, with a view of selecting from it, without a feeling of despair. What a multitude of sorts are there to which the same description will apply! I have just glanced over a foreign catalogue, and find some thirty Perpetual Roses described as "deep rose." These *may* all be, and many doubtless *are*, quite distinct, but still resembling each other too nearly. Want of distinctness is the greatest fault of our collections, and in the profusion of new varieties which are annually sent out, the *last* thing thought of by the originators appears to be, whether they are *distinct* from sorts already in cultivation. If the leading horticultural societies would institute a sort of censorship over this flower, it would be a good move. Why could they not treat roses as the American Pomological Society does fruits, recommending some and condemning others?

I am an ardent lover of roses, and have been at some pains to obtain the best varieties, but find, among the many new sorts, few that excel some of the old established favorites. Still, there *are* new varieties which are a great improvement upon the older ones, and to these I do not hesitate to accord their full share of admiration. This improvement is especially discernible in Moss Roses, of which a few years since there were but few kinds; and these, with few exceptions, valuable only while in bud. Now, Moss Roses are numerous, and not only are they beautiful in bud, but several sorts are, when fully expanded, very finely formed, although, of course, in this state the greater part of the moss is concealed from view.

To commence with June Roses, among which are several varieties which can scarcely yet be dispensed with. I will first mention one of my especial favorites—of the class "Rosa Alba"—La Séduisante, a charming rose, of a deep rosy blush towards the centre, becoming nearly white near the edge. It is of good size and fine form; and its very numerous buds and flowers are finely contrasted with a very abundant foliage, of a peculiarly intense green.

Among Damasks, there is one variety which is quite indispensable to any collection, however small—Madame Hardy. This is the finest white rose that I have seen, being quite large, of the purest white, and beautifully cupped, although it not unfrequently shows a green bud in its centre. It is of vigorous habit, and a free bloomer.

Provence.—In this class is that old favorite, the Cabbage Provence, still one of the best. Even Mr. Rivers says, that "No rose is more fragrant and beautiful." If it were but a Perpetual!

Dometille Becar is a large, very double rose, of a bright pink, with sometimes lighter stripes.

Reine de Provence is also a quite large, and very good rose; pink, approaching to lilac.

French.—Perle des Panachées is one of the prettiest of this class. It is neither large nor very double, but is beautifully striped with pink and red,

upon a nearly white ground, closely resembling in color a striped carnation.

Sanchette is a finely formed variety, of a deep rosy pink, and very full.

Schonbrunn, light crimson, very full, and finely shaped.

Triomphe de Jaussens, purplish crimson, fine.

Triomphe de Coster is a richly colored rose, and an abundant bloomer. Large, well formed, and double deep crimson.

Hybrid China.—Chenedolé, a very large, showy rose, not perfectly double. Bright crimson.

Double Margined Hip is a very pretty and distinct little rose, although not very full. Color white, edged and shaded with pink.

George the Fourth. One of the best of the class, and very desirable. Deep purplish crimson. Blooms freely.

Magna Rosea. A very large pink rose, but not very double.

Madame Plantier, white; not very large, but fine.

Hybrid Bourbon.—Charles Duval, a beautiful rose; large, finely formed, and of a lovely bright rose color.

Coupe d'Hébé is one of the most beautiful roses that I ever saw. Its shape is scarcely to be improved, and its delicate pink color is remarkably fine.

Frederic the Second, a large, deep crimsoned sort; quite good.

Paul Perras, very large pale rose; not very full.

Paul Ricaut, large vivid crimson; very good.

La Vesuve is the most perfectly formed rose that I have seen. It is as regularly imbricated as a Camellia; quite large, and of a lovely bright pink color (I am not quite positive that it belongs to this class).

Of the Austrian Briers, Persian Yellow is undoubtedly the best. It is a splendid yellow, but not very vigorous, and has a villainous smell.

Climbers.—Among the Prairies, I have seen none so pretty as Ranunculiflora. It is a lovely blush, and much better formed than Baltimore Belle. These two, with Queen of the Prairies, are invaluable.

Queen of the Belgians is one of the best Ayrshires. It is not large, but pure white, and exceedingly pretty.

Mosses.—In this beautiful class, the varieties are becoming numerous, and we shall doubtless have, ere long, perpetual blooming sorts worthy of the name. Of the kinds now so called, few will bloom more than twice, and many, if I am not mistaken, will do so much only with careful culture and pruning. General Drouat is one of these, of a fine dark crimson color, but not very double. White Perpetual is well known for the beauty of its immense clusters of buds. The expanded flower is not pretty, and I have rarely found it to bloom more than once. I imagine that the most certain method of obtaining flowers from these sorts in autumn, is to prune back the shoot below the flower buds, as soon as the latter are readily perceptible. This will, if the soil is in proper condition, cause a second crop of shoots to push, which *should* flower finely.

Among the old varieties, the Blush and Common Red are still favorites, and not yet to be dispensed with. Celina, of more modern origin, is a fine crimson, and has few equals.

Comtesse de Murinais is one of the most desirable. Its buds are of a delicate blush, and the just opened roses, a pale flesh, soon changing to pure white, and quite double.

Charlotte de Sor is a finely shaped rose-colored variety.

Crimson, a free grower, and quite pretty; not very double.

Ætna, light crimson; sometimes quite brilliant and pretty.

Jean Bodin is a very fine rose, deep pink; of a beautifully cupped shape, and quite double.

Lanei, deep rose, sometimes nearly crimson; not very full.

Luxembourg, a magnificent crimson, but sadly deficient in petals; its buds are exquisite.

Marie de Blois is very large, of a bright rose-color, and quite double, but a coarse flower; its habit is very robust.

Presque Partout is exceedingly mossy, the leaves and branches being nearly covered. The flower is bright rose, full and pretty. Moss Moss and Zoé are very similar to, if not identical with, this sort.

Princess Adelaide is a magnificent rose, nearly as large and quite as double as the Cabbage Provence. It is a deep blush, well shaped, and extremely vigorous.

Sœur Marthé, rose, beautifully formed, very pretty.

Unique Nouvelle is a fine dark crimson, somewhat mottled; very full and fine. The darkest Moss that I have seen.

Hybrid Perpetual.—The varieties in this class have become so multitudinous, that one is quite at a loss to particularize. I shall not attempt to do justice to all, but content myself with mentioning my particular favorites, and some of those among the newer sorts which give promise of excellence.

Baronne Prevost will long be a favorite. Its large and abundant flowers, of a rich rose-color, are really magnificent.

Caroline de Sansal is a charming rose, of a pale flesh-color, and fine form; quite distinct and beautiful.

Charles Boissière, a fine rose of which I hear little said; it is a deep brilliant crimson, and well-shaped.

Duchess of Sutherland, bright rose, well-formed and very fine.

Géant des Batailles, not large, but very beautiful and distinct; its fiery crimson can scarcely be excelled.

General Castellane, a beautiful rose of a dark rich crimson, finely formed and distinct.

General Jacqueminot. This is a magnificent flower when first opened, but a hot sun soon causes it to droop; its color is a brilliant crimson, and form good.

Gloire de France. Another bright crimson sort; very fine.

Graziella, although perhaps not perfectly double, is a lovely rose; its flowers are a clear light pink, beautifully cupped, and when partially expanded, exceedingly pretty.

Lady Alice Peel is very beautiful; its shape is exquisite, and color, fine deep pink, veined with red.

La Reine is undoubtedly the largest of roses; but it is sometimes coarse, and its flowers are so very double that they frequently open badly.

Lord Raglan I have not yet fairly proved, but have high hopes of it; vivid crimson, and very double.

Madame Laffay is an old favorite of mine. Its finely-formed rosy crimson flowers, splendid foliage, and free blooming habit, render it one of the most desirable.

Madame Masson, rosy crimson, very double and fine.

Prince Chipetouzikoff, deep red, very double, but not large; well-shaped and very good.

Pius the Ninth is a fine rose of a deep purplish red, blooming abundantly.

Robin Hood, rose-color, not very full; very pretty.

Reine des Fleurs, pink, tinged with lilac, beautifully formed.

Sir John Franklin, bright crimson; very double and good.

Souvenir de Leveson Gower, bright red; very pretty.

William Griffiths is one of the most beautifully shaped of roses; is a pale rose color, with a tinge of lilac, and exceedingly double and fine.

It would be easy to enumerate many more, nearly, if not quite as good, as those above named. I find, however, that my *few* varieties have already reached a number, which would form of themselves quite a respectable collection, and will not at present pursue the subject further, passing by, in silence, the many lovely roses embraced in the several classes usually cultivated under glass, with a mental resolve to speak well of them on a future occasion.

ORNAMENTAL PEAR-TREES.

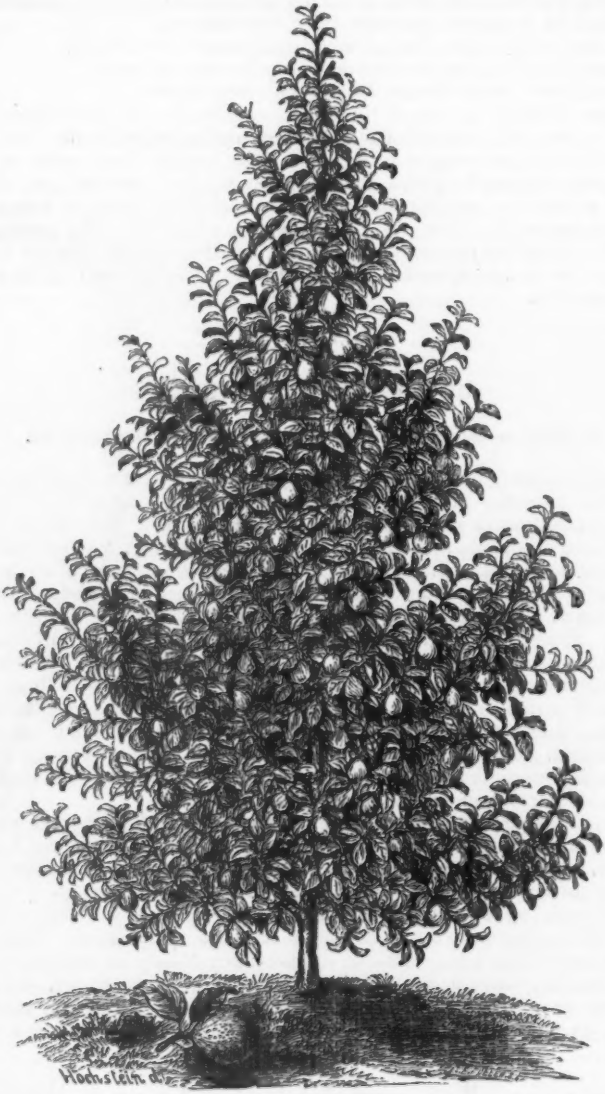
BY WILLIAM SAUNDERS, LANDSCAPE GARDENER, GERMANTOWN, PA.

THERE is probably no species of tree that produces greater variety in form of growth than the pear. It would be difficult to imagine any form in a deciduous tree that is not duplicated in some of the great variety of this fruit. Those of a spreading growth frequently assume that dependent habit so much admired in the Elm, Linden and Silver Maple; of such are the Summer Bonchrétien, Beurré de Capiaumont, Beurré Diel, Beurré de Ranz, and Passe Colmar. The round, compact form of the Seckel is readily distinguished. The symmetrical growth of Vicar of Winkfield, Tyson, Buffum, and many others, is not excelled among deciduous trees, as may be seen from the accompanying engraving of the last named, which is a faithful representation of a tree growing in the grounds of Messrs. Ellwanger and Barry, Rochester. I can vouch for its accuracy, having accompanied the artist, Mr. Hochstein, while he was *taking* it. This tree possesses much of that refined massiveness of habit, and graceful delicacy of stem, the perfection of which belongs exclusively to the Sugar Maple.

There is as much beauty and variety in the foliage of pear-trees as there is in their habit of growth; the broad deep green leaves of the Vicar of Winkfield, Napoleon, Chamoisine, the Jaminette, and particularly the beautiful glossy foliage of Baronne de Mello, are always admired.

The fall coloring may also be noticed; among the most decidedly effective are the White Doyenné, Doyenné Boussouck, and the Buffum. The Glout Morceau, one of the most beautiful of pear-trees, retains its leaves fresh and green after all others fade; indeed, this plant grows so freely, and at the same time so *stocky*, that I would suggest its use as a hedge plant, for dividing lines in the fruit garden; few plants are better adapted to this purpose.

[The suggestion of Mr. Saunders, that the Glout Morceau should be used as



BUFFUM PEAR-TREE.

a hedge plant, is a somewhat novel one, and we should be glad to see it put in practice. With proper attention to pruning and thinning out, a hedge of this kind might be made both useful and ornamental; the fruit, we think, would ripen fairly, and fully repay any extra labor that might be bestowed upon it.—Ed.]

THE BRANCH-TRIMMER AND PRUNING-KNIFE.

The instrument here represented is due to M. Marmuse, maker of horticultural implements.

Its object is to obviate the necessity of using two instruments alternately, according to the parts needing attention in the tops of trees.

The trimmer and pruning-knife is composed principally of two arms; the larger and longer one shows the common pruning-knife, but differs from it in the back being sharp; the other is smaller, more slender, and shows the edge of the clipper. By the play of the instrument, the object placed between the two arms is easily cut; the smaller one works upon the larger without passing by the sharp back placed on the outside edge, which would make it dangerous to use.

THE BRANCH-TRIMMER AND PRUNING-KNIFE.

In becoming accustomed to this instrument of M. Marmuse, when ready to pass from the operation of the clipper to make use of the pruning-knife, it is only necessary to turn a screw situated at the lower end of the handle. By this movement, the handle of the clipper flies from the groove by the aid of a spring which is fastened on this handle, and presses against the handle of the pruning-knife. These two parts are thus separated, and the two blades are opened.

Even very strong branches are easily cut by this instrument. As to the pruning-knife, it does not seem to us of the most convenient shape.

Experience has proved that much of a curve in the pruning-knife is entirely useless, and even annoying on this account, that only the weakest part of it can be used.

The curve of the pruning-knife of M. Marmuse needs then to be materially modified, in order that the instrument may be adapted to the service we expect from it.—Leon Gouas, in *Revue Horticole.*

LORD RAGLAN ROSE.

(See Frontispiece.)

In our *Frontispiece*, the reader will find a beautiful and accurate drawing of this new and superb Rose. The engraving is so well done that a description is hardly needed. Lord Raglan is a large and finely-shaped Rose, very double, nicely cupped, and of a vivid crimson and scarlet color. It blooms freely, and is a robust grower. It will take rank among the best of the new roses, and will no doubt be a favorite with the amateur.

THE TAYLOR GRAPE.

Editor of the Horticulturist:—In the October number of your valuable Journal, I notice that you acknowledge the receipt of a bunch of the Taylor Grape from Samuel Miller, Calmdale, Pa., who, it appears, had it sent to him, probably from Kentucky, where it hails from, and has been known for some years.

I would suggest, before we go any farther with this grape, that its true or right name should be settled, so as to prevent confusion, as far as may be, in the nomenclature of our hardy grapes. I also observed a notice of the same grape in another periodical, by the editor, to whom Mr. Miller had sent specimens.

I believe this is the same grape, the description and history of which were given in the *Valley Farmer*, (published in St. Louis, Mo.,) on page 122, in the April number for 1858. This was the first published account that I had seen of it, and was headed, "A New Seedling of Kentucky." The editor of that journal in that article says it "has been grown by a few persons in Kentucky for twelve or fourteen years, and known as the "Bullitt Grape." By this we see that it has a name of many years' standing, doubtless a local one, but just as good to become general as any other, and it claims precedence over all others, by right of priority. The editor, in the article alluded to, goes on to say, "We are indebted to Judge John Taylor"—whence, doubtless, its name—"for a full account of it;" and then proceeds to give its qualities, habits, description of vine, fruit, &c., and closes by saying that Mr. Longworth pronounces it one of the very best grapes for ladies' wine, and Prof. Noble Butler is of opinion that it is not inferior, in any particular, to the Rebecca or Delaware. But with this we have nothing to do in this communication, which is made simply to assist in correcting any errors in its nomenclature.

We received cuttings from the same source, at the same time, and taking the article in the *Valley Farmer* as our guide, have grown it, and now have it in our catalogue under the original name of "Bullitt." Since, however, it left Kentucky, it has been dubbed with a new name, which creates great confusion. We contend that it should bear the name of "Bullitt" until some horticultural society, or the National Pomological Society, shall change its name. And we ask you, as the editor of the leading horticultural journal in America, (if the facts given are true,) if its name should be changed by any person to the Taylor? Yourself and

readers are well acquainted with the rules that govern the nomenclature of new productions, and will render a just verdict accordingly.

It matters but little by what name a fruit is known, provided it is known everywhere by that name, and has no synonyms, and as we shall doubtless hear further from this variety, let us try to set ourselves right as to the proper name it should bear. The grape mania having started in these latter days of scientific accuracy, it would be unpardonable if the nomenclature of this fruit should fall into the confused condition of some of our earlier fruits; and the railroad speed with which new varieties are increasing, threatens to demand more space in our next fruit-books than those good old-fashioned fruits, the apple and pear, and without a tithe of the range of season, or quality, that either of these possesses. We should not, therefore, have one variety under two names, or admit any varieties into the lists that are not really an acquisition.

St. Louis, Mo., Oct. 20th, 1859. CAREW SANDERS.

[We deprecate, equally with Mr. Sanders, the needless and heedless manner in which synonyms are multiplied. If this Grape has been known for years as the "Bullitt Grape," as would seem from our correspondent, then that should be its name, and no other, until it is changed by some person or persons competent to do so. We now have acknowledged rules of nomenclature, and an observance of these by all parties would save much confusion. We purpose soon going into the subject *in extenso*, and in the mean time we shall look further after the Taylor Grape.—ED.]

TREES GROWING IN, OR OVERSHADOWING A GARDEN.

THERE are few things on which the owners of property look with more respect than old trees. Like old friends, they cannot well be discarded without a just and urgent reason: and even then the act of condemnation is often attended by such misgivings, that it is not until the object has been fully attained for which the old tree was taken down, that regrets for its absence give place to a feeling of rejoicing at the beneficial change effected. This very justifiable attachment to old trees may, however, be carried to excess. Many important improvements are effectually checked by "a tree in the way," which it would be almost treason to destroy; while, at the same time, should any uncontrollable agent, as a high wind or stroke of lightning, do the act of destruction, the greatest friend of the unfortunate tree will hardly express a regret that it is gone.

Now, there is something certainly wrong in this ; and the veneration in which the tree is held is certainly much beyond its merits when it obstructs some particular view, shades some important border or building, or prevents the effectual accomplishment of some interesting alteration. Many windows are deprived of half their usefulness by large trees growing too close to them : and it is also a certain fact that many chimneys are made to smoke the rooms in a like case. It would be wrong to condemn that feeling which venerates old or fine trees ; but when such stand in the way of an acknowledged improvement, the proper question to ask is this, If the tree in question were not there, would you wish to have it in that place ?

If the answer be in the negative, then cut it down immediately, for it

cannot be wanted. But it is not my purpose here to find fault with the propensity we mostly all have of clinging to something or other, but to complain of the practice of growing large fruit trees in kitchen gardens; as Apple, Pear, and Cherry-trees are often found high enough to require a thirty or forty-round ladder against them to gather the fruit. These towering objects are much more hurtful in the kitchen garden than is generally allowed ; as their roots, in the good cultivated mould of a kitchen garden, run a great distance, and the crops underneath are very indifferent in quality. As most gardens are more or less frequented by the family and their visitors, good useful crops are certainly much more interesting than poor ones, with an indifferent crop, perhaps, of Apples or Pears on the trees which overhang them. Besides which, it so seldom happens that there is a good crop on trees planted so very widely apart, that it is much better to have all such trees growing in one place, and only so near each other as to occupy the ground without crowding. The ground on which such trees are growing might either be in tillage or in grass. If the former, some small crops, as Currants or Gooseberries, may be grown at distances of six feet apart ; but the digging among these must be very shallow. There are hundreds of acres of orchards of this kind ; and the same may, with equal advantage, be grown elsewhere. The object here advised is to relieve the kitchen garden of those high and over-shadowing trees which injure and disfigure so many plots of vegetable ground.

Now, in addition to the evil done by trees inside a garden, those outside it are often much too near it. High trees on the south side of a garden overshadow it very much in winter ; and fruit trees against walls so deprived of the sun in winter never do well. Trees are also liable to send their roots long distances foraging ; and the more robust kinds quickly devour the fat of the land. I have seen a root upwards of fifty feet long, and nearly as thick at one end as the other, where it had got into a line of good material, and speedily found its way to the furthest end of it. Trees on lawns will also search out flower-beds, and occupy their enriched contents, with astonishing rapidity, to the detriment of the proper tenants there : while peat or bog-earth, of prepared plant-borders, is especially liable to invasion. It is, therefore, advisable in all these cases to keep a watchful eye on the intruder ; and when the offending tree cannot be taken away, cut back its roots within its own territory. Supposing it to have usurped a flower-bed in the lawn, merely cutting its roots at the sides of the bed and renovating the soil would only be to invite it to another feast, which, if in the growing season, it would swallow up in a very short time. But cut back its roots by making a ditch about two feet or so from the edges of the bed, and fill that ditch with something distasteful to it. Chalk rammed in hard answers pretty well ; or, if it must be earth, let it be of the poorest kind. Some run to the expense of a brick wall ; but I do not advocate that, as it is not always an effectual barrier. I once knew an excellent garden wall, with Peach and other trees on the south side, and on the other side timber trees of various kinds were growing close up to it : and whether the latter smelled the better material their more delicate brethren had to grow in on the south side, or by the poverty of their own side felt themselves justified in the invasion, certain it is that in two years the whole of the twelve-feet-wide border on which the Peach and other trees were growing was filled with Ash, Elm, and Chestnut roots. It is needless to say the Peach-trees suffered sadly, the evil not being

discovered until much mischief had been done. It is, therefore, advisable for all who have timber trees growing in the neighborhood of their cultivated grounds to look well to them, that they do not usurp more than their share of space. It is also advisable for all who plant fruit trees in gardens to consider whether they are likely to become standards or not, and, if any danger of the latter, try and plant them somewhere else; for it not unfrequently happens, that a small tree is put in under the plea that "it can do no harm," which, growing up into, perhaps, a fine one, is then too good to cut down; and damage to the crops and irregularity in appearance are the results.

In condemning large standard trees in gardens, I by no means find fault with the trellis-trained ones which form so important a feature in some gardens. On the contrary, where the roots of a tree can be made to occupy the bottom of a walk, or other piece of ground not under cultivation, and its top likewise not being detrimental to anything near it, the tree then is not only excusable, but highly recommendable. Tunnel-shaped trellises have become fashionable of late; but where a large quantity of fruit has to be grown with the least possible trouble, be assured that large, full-grown trees are the best to produce this. Training in fantastic forms may please the eye; but the larger fruits, as Apples, Pears, Plums, Cherries, and the like, bear the most plentiful crops when not too much cut. This, however, is foreign to the subject in hand, excepting so far as to give additional reasons for not having too many fruit trees (trained or otherwise) in the kitchen garden; and be sure to keep the more voracious timber trees at a safe distance. Shelter from cold winds is doubtless often urged as a reason for having them so near; and when the belt in the rear of these is narrow and thin it is not prudent to cut much away without due consideration: but where there is plenty to work upon let the axe and mattock be freely used, and it will be found that trees at fifty yards' distance from a wall shelter it nearly as much as when only at fifteen yards, while their shade is less hurtful. The same may be said of buildings and other towering objects.—J. Robson, in *Cottage Gardener*.

"ACCLIMATING" FISHES.

Surprise has been expressed by gentlemen who have given attention to ichthyology, that I could so readily fresh-waterize salt-water fish. Now, the fact probably is, that all fish were originally inhabitants of salt water, but the Deity having implanted in them habits of wandering, they have been gradually dispersed throughout all the waters tributary to the great oceans, and carried by birds to every pond, pool, and lake on the face of the earth, which teems with countless millions of organized insects, eternally propagating their species to supply them with food. Man, animals, and fish can at all times change their residences and become acclimated to any locality. When fish make these changes, it becomes very difficult to note with fidelity the alterations that frequently take place in their color, season of breeding, &c., involving the natural history of this creature in much obscurity.—*Pell's Report on Fishes.*

ORNAMENTAL GRASS.

QUAKING GRASS.

BRIZA MAXIMA (GREATEST QUAKING GRASS.)—*Roots* annual, and consisting of many white, fibrous rootlets. *Leaves* arising direct from the crown of the root, about half an inch broad at their base, about four inches long, smooth, milky green, and their edges often bent inwards, terminating in a sharp point. *Flower-stem* rather slender, about two feet high, round, very slightly furrowed, with four or five knots or joints, the chief part of its length inclosed in the sheaths of the leaves, the lower part of which is often purple. *Flowers* crown the stem in a loose, nodding panicle of scaly spikelets, of which the largest are nearly an inch long, and one-third of an inch broad at their base, tapering off to a flat-sided cone shape. When ripe these spikelets are of a very pale straw colour, and have a silvery luster, often slightly tinged with purple near their base; stalks of the spikelets very fine: the *florets* are in two rows; *calyx* of two unequal valves; *ovary* almost hemispherical, with two points. It belongs to *Triandria Digynia* of the Linnæan System.

The earliest writer who mentions it as grown in England is Gerarde. He says it was then called "*Pearl Grass* and *Garden Quakers*, growing naturally in some parts of Spain, and it is sown yearly in many of our English gardens."

The term *Quaking Grass* has reference to the spikelets, which are in constant motion, being agitated by the slightest current of air, owing to their size, and the extreme delicacy and length of their stalks.

Parkinson, who wrote a few years later than Gerarde, says this Grass was given him by Clusius, the botanist, under the name of "the elegant Grass with Hop-like heads" (*Gramens elegans pululi glumis*), a very descriptive title, and, adds Parkinson, "It is now-a-days among our gentlewomen much esteemed to wear on their heads or arms, as they would do any fine flower or pretty toy to behold, as also to

put into wreaths and garlands that the country people make for their sports and pastimes."

Ray, writing about the same time, says, that when he sowed it in the spring it produced its flower-heads in August, but if he sowed it in the autumn they were produced in spring. He found it growing wild near Messina, in Sicily, and it is also a native of Italy and other parts of southern Europe.

It flourishes in any moderately fertile, loamy garden soil, and may be sown at either of the seasons mentioned by Ray. The seedlings from the autumn sowing are sometimes destroyed by severe winters.

The Quaking grass is quite ornamental in gardens, and much esteemed by ladies for dressing their flower-pots, as well as for a dried ornament in winter. A root or two requires but a little space.

THE BEGONIA.

In the whole vegetable world there is not a single family which repays the care and attention of the cultivator so well as the Begonia. There is not a single genus which combines so many good qualities; not one which, as our German neighbors would say, is so "grateful" for the pains bestowed upon it. The facility with which they can be propagated, (for anybody can strike a Begonia cutting,) their cheapness, generally speaking, and the simplicity of the treatment they require, render them general favorites. To write a long essay upon their cultivation would be simply an absurdity—almost amounting to an insult to the reader. All they require is a good, rich, open soil, and a warm, moist place to start them in—they do not care if it is a hotbed or a stove—and a snug greenhouse in which to flower. Give them these and they are satisfied—at least the greater part are so.

Some 350 species are known to botanists, but only about a third of the best of them are in cultivation. Some of these are remarkable for their graceful habit, such as *B. fuchsioides* and *B. Putziesii;* some for their delicious fragrance, as *B. odorata;* some for the time they remain in flower, opening one cluster after another continuously. I have known one plant of *B. nitida* which had two or three cymes of flowers *always* open, and sometimes more, for upwards of three years; and, for aught I know to the contrary, it may be in flower to this day. One cluster always remained till a new one was ready to take its place. Some species, like *B. manicata* and *B. urophylla*, produce a mass of flowers at one time; and as that time is early in the spring, these plants are very valuable for decorative purposes, or for cutting from for bouquets.

B. octopetala, which was one of the best in the whole family for winter blooming, has, I fear, been lost; at any rate I have inquired for it in all the London nurseries and public gardens without success. It may, perhaps, still be grown in some private garden; and if any person has really got it he would do good service to the country by placing it in the hands of some one who would propagate it to the utmost. It is a tuberous-rooted herbaceous species, (like the old *discolor* or the splendid *diversifolia;*) its flowers are pure white, large as an Anemone—larger, in fact, than any other species, and having, as the name implies, eight petals. It is a native of Peru, and was introduced some twenty years ago.

But the Begonia has other recommendations of which we have not yet spoken—the exquisite beauty of its variegated foliage, and the facility with which it can be hybridized. It is only about three years since *Rex* astonished the world, and now it is to be met with in almost every garden you visit, either in England or on the Continent. It is a market plant, purchasable for a few pence in all large cities from Paris to Moscow, from London to St. Petersburg. By crossing, it has already given rise to an almost innumerable progeny of vegetable genus. To develop the beauty of these variegated Begonias to the utmost, three things are necessary—heat, moisture, and shading. Let us mention a few of the best of this class.

B. splendida, young leaves like crimson velvet, but the plant is apt to become ugly as it reaches a large size. The variety called *B. splendida argentea* is not open to this accusation. It is really a magnificent thing, a pink tinge shining through the silver of the foliage.

B. Griffithii (still called *picta* in some gardens) is one of my greatest favorites, the various zones of color are so beautifully shaded the one into the other.

B. xanthia Reichenheimii, green bands follow the principal veins, the spaces between pure white.

B. xanthia lazuli, leaves copper colored, shining with a beautiful metallic lustre.

B. xanthia pictafolia, leaves copper col. with distinct large white blotches.

B. Queen Victoria, raised by Makay, the Belgian nurseryman, very delicate; the leaf milk-white except a margin of green dots, and a few about the centre.

B. Prince Troubetzkoy, apparently a cross from *laciniata*, very distinct, the leaves dark in the centre, pea-green towards the margin; footstalks and underside reddish.

B. argentea, the upper surface of the leaf quite white; exceedingly delicate.

B. regina, only one step removed from *Rex*. the bands of color being rather more shaded off. In the same strain are *Miranda*, *Madame Wagner*, and *argentea guttata*, which are scarcely distinct enough from each other.

B. amabilis, the bright banded leaves very glossy and shining.

There are many others which have been raised more recently, of which the merits are less known, as only small plants are generally met with. Those most highly spoken of are *nebulosa*, *Ajax*, *nobilis*, *Victoria*, (different from *Queen Victoria*,) *grandis*, and others.—KARL, in *Cottage Gardener*.

EDITOR'S TABLE.

To Contributors and others.

Communications, Letters, Catalogues, Periodicals, &c., intended for the perusal of the Editor, and packages by Express, should be directed to the care of C. M. Saxton, 25 Park Row, New York. Exchanges should be addressed to "THE HORTICULTURIST."

OUR readers have already been made aware of the change in the editorial department of the HORTICULTURIST. Mr. Smith, in his "Card," has said, and well said, about all that is necessary on this point. He retires gracefully, and with the respect and good wishes of all; with ours especially. We have the satisfaction of knowing that his interest in the HORTICULTURIST remains unabated, and that it will receive his assistance as far as time and circumstances will permit; and we venture to hope that his friends will be ours, and will coöperate with us as they coöperated with him. Mr. Smith expects to go abroad, and in this event we shall be favored with some valuable communications from him, embracing the most recent and interesting intelligence, gathered at the best points and from the best people.

Whatever pertains to the Publishers will be done in the most thorough manner, and they will spare no pains to make the HORTICULTURIST one of the best and most useful publications of the day. With the assistance of some of the best talent the country can afford, they hope that its present high and well-earned character will be maintained, and that it will merit and receive a cordial and generous support from old friends and new.

We shall endeavor to keep our readers thoroughly posted in regard to all novelties as they appear, whether in this country or Europe. The world is progressing; improvements are daily being made in rural architecture and the construction of horticultural buildings; new modes of heating and ventilation are being introduced; and in all departments of rural taste we perceive a pervading spirit of activity and inquiry which must produce its fruit in due season. We shall help on this good work to the best of our ability, and hope to be cheered by the approval and coöperation of our friends. And thus, having said our "say," we retire to our "sanctum," wishing all our friends "A happy New Year!"

WE would call the attention of our friends to the peculiar facilities afforded by the advertising columns of the HORTICULTURIST. We shall hereafter place four advertising pages in front of the Magazine; these will possess most of the advantages of a cover page, and our charge will accordingly be at the rate of $15 per page. Advertisements should be sent in before the 20th of the current month.

PORTABLE HEATERS.—A few days since we saw at a friend's a contrivance which we think admirably adapted to supplying heat temporarily to a cold pit, and it may be used by the gardener under a variety of circumstances where a constant supply of heat is not needed. Our friend, unfortunately, is subject to attacks of that abominable complaint, the rheumatism; having experienced relief from the application of bottles of warm water, and finding the bottles unhandy, he had made several earthenware jugs resembling in shape horse-shoe draining tile, the bottom being slightly concave, so as to fit nicely to the leg; on the top is a neck for supplying the

hot water: if too warm, the temperature is moderated by wrapping the bottle in flannel. Now bottles of this kind, some two or three feet long, we conceive to be well adapted to cold pits, &c., when danger is apprehended from sudden and extreme changes in the weather; and these often occur. A couple of these bottles placed in a small pit, with the usual covering on the sash, would set Jack Frost at defiance. Indeed, we do not see why, with the aid of several such bottles of suitable size, a good many plants could not be kept in a growing condition during the whole winter, and furnish a good supply of flowers. A small under-ground greenhouse might thus be heated at a trifling expense, and be made available for something more than the mere protection of half-hardy plants. Camellias, Roses, Geraniums, &c., would thrive well under such circumstances. In severe weather the bottles would need to be filled night and morning, but the sashes should always be kept uncovered during the day. The intelligent gardener will perceive a number of circumstances under which these bottles can be made very useful, and we hope he will give them a trial. Any potter can make them. To the amateur we would especially commend them for the purposes above named. They are *not* patented, and the readers of the HORTICULTURIST can use them for the "rheumatics" or the pit at their pleasure.

W. T. C.'s communication has been received, and we have something on the other side; but at present we do not wish to open the "grape" question. At the proper time both sides can be heard. It is true that some still continue to plant the Isabella and Catawba mainly, and it is equally true that others, who have grown these extensively, are working their old plants with kinds which they conceive to be better. It is not denied by any, we believe, that the Isabella and Catawba are fine grapes; but the question is, are they the standard of perfection, and are we to be content with them, and cease striving after anything better? We think not. But we drop the matter for the present, simply reiterating the opinion heretofore expressed in the HORTICULTURIST, that we already have better grapes.

WE are not fairly in the traces yet, but when we get well harnessed we expect to go ahead at a lively gait. We think we could pull better with a good "pile" of subscribers on our back; at all events we should like to see it tried, and *now* is the time to do it. Will our friends take the hint?

OUR AGENTS in San Francisco, Cal., are Warren & Carpenter. Mr. J. Q. A. Warren, having formed a partnership with Mr. Carpenter, under the title of Warren & Carpenter, has removed from his former place of business to 167 Clay street, where they have constantly on hand the latest news and literary matter, received regularly by steamer.

The HORTICULTURIST may be found at their office, and we commend them to our friends in that part of the country.

CLUBBING.—We will furnish a copy of the HORTICULTURIST, and of the AMERICAN STOCK JOURNAL, devoted to the improvement of domestic animals, each one year, for $2 50. Specimen copies of either furnished gratis.

WILL the secretaries of the various horticultural and agricultural societies please send us a correct list of their officers for 1860?

THE quære of our Manchester subscriber will be fully answered in our next.

WE saw our friend MOORE of the *Rural* a few hours since, waiting for a plunge amid the Broadway "'buses." We tried to dissuade him from the rash act, but, with characteristic determination, he was bound to "go in," and so we left him. We have heard nothing of him since. We hope no untoward fate overtook him, and that he was not swallowed up in that "Maelstrom;" if so, then one of the best of papers has lost one of the best of editors; if *not*, the *Rural New-Yorker* may still be had for two dollars a year.

NEW ANNUALS.—Among those announced for 1860 we find the following: *Clarkia pulchella*, var. *integripetala*, (petal whole instead of lobed); a new *Hybrid Blue Sweet Pea*; *Callirhoe digitata*, (resembles the Scarlet Linum); *Œnothera biennis*, var. *hirsutissima*, (from California); *Dianthus chinensis laciniatus*, (grows two feet high, with flowers about four inches in diameter; colors various; in bloom from end of May till frost); *Dianthus chinensis Heddewigii*, (grows about a foot high; flowers about three inches in diameter, of various colors); *Anagallis grandiflora*, var. *Eugenie*, (light blue, shading from the centre to pure white at the border); *A. grandiflora*, var. *Napoleon III.*, (rich maroon crimson); *Nemophila discoidalis marginata*, (a variety of the *discoidalis*, with a white edge). We commend the above to the notice of our enterprising seedsmen, if they have not already secured them.

THE PARK FEVER.—We have had the Multicaulis fever, the Shanghai fever, and numberless others, and now we can plainly perceive strong symptoms of the *Park fever*. It is manifesting itself unmistakably in various parts of the country, and for our own part we are cruel enough to wish that not a village nor a city in the whole country may escape. Like the measles and chicken-pox, we think it would be a good thing for all to have it once, and in the *natural* way. New York is going through it kindly; indeed, is convalescing splendidly; and Brooklyn at last has got it "badly." Our neighbor over the river is not content with her churches and present suburban character, but is clamoring for, not *a* park, but a whole chain of them ten miles long! Now, we rather like that, and hope she may get them all. By all means keep the park fever "going."

THE MAXATONY GRAPE.—We have heard this grape spoken very highly of, but have never seen it. Can any of our readers give us any reliable information in regard to it?

HOW TO COOK LOCUSTS.—During the present year, we believe, the Locusts are again to make their appearance. Some of our readers may be fond of them; if so, here is the proper mode of cooking them:

"The locusts generally fly within two or three feet of the ground, and as soon as their approach is perceived, the people rush out, and with great clamor endeavor to strike them down, or inclose them in their lambas, while the women and children gather them up in baskets from the ground, and detach their legs and wings, by shaking them from one end to the other of a long sack, in the same way that grocers clean their raisins. The legs and wings are then winnowed away, and the bodies dried in the sun, or sometimes fried in fat, and then kept in sacks for food, or sent to the markets for sale. In some parts of Ankova and in the provinces of the Betsileo to the southward, grasshoppers and silkworms, in the chrysalis state, are collected in large quantities, cooked and eaten as food, or offered for sale."—*Ellis's Madagascar*.

THE BOWOOD MUSCAT GRAPE.—The new grapes having been somewhat extensively introduced into this country, our readers will be glad to obtain all possible reliable information in regard to them. The following remarks on the Bowood Muscat, respecting the merits of which some doubts have been entertained, will be read with interest:

"On visiting Shrubland last week I was struck with the prolific character of this grape, which is cultivated there in pots, among Black Hamburghs and Sweetwater, and in every case had set better and produced more bunches than either of those kinds, and under very adverse circumstances, having the worst position in the house—near the door. I learned from Mr. Foggo that little or no artificial heat had been given; in fact, only one pipe ran round the house, and it was equally forward with the other sorts. I have not the slightest doubt that it is as hardy as the Sweetwater. The whole of the plants I saw had from six to nine good-sized bunches of well-formed berries, which differ very little in appearance from the Muscat of Alexandria but possibly the habit is not quite so strong. Of course they were not ripe, but having tasted

this sort frequently, I can pronounce it to be of very superior excellence. I can strongly recommend its introduction where a hardy prolific Muscat-flavored Grape is required."—JAMES CUTBUSH, *Highgate Nurseries.*

SALTS.—The day has long passed when it was disputed whether saline bodies are promotive of vegetable growth. It is now determined that some plants will not even live without the means of procuring certain salts. Borage, the Nettle, and Parietaria, will not exist except where nitrate of potash is in the soil; Turnips, Lucerne, and some other plants, will not succeed where there is no sulphate of lime. These are facts that have silenced disputation. Still there are found persons who maintain that salts are not essential parts of a plant's structure; they assert that such bodies are beneficial to a plant by absorbing moisture to the vicinity of its roots; or by improving the staple of the soil; or by some other secondary mode. This, however, is refuted by the fact that salts enter as intimately into the constitution of plants as do phosphate of lime into that of bones, and carbonate of lime into that of egg-shells. They are part of their very fabric, universally present, remaining after the longest washing, and to be found in the ashes of all and any of their parts, when subjected to incineration. Thus Saussure observes, that the phosphate of lime is *universally* present in plants.—(*Sur la Végét.*, c. 8, s. 4.) The *sap* of all trees contains acetate of potash; beet root contains malate and oxalate of potash, ammonia, and lime; rhubarb, oxalate of potash and lime; horseradish, sulphur; asparagus, super-malates, chlorides, acetates, and phosphates of potash and lime; potatoes, magnesia, citrates, and phosphates of potash and lime; Jerusalem artichoke, citrate, malate, sulphate, chloride, and phosphate of potash; garlic, sulphate of potash, magnesia, and phosphate of lime; geraniums, tartrate of lime, phosphates of lime, and magnesia; peas, phosphate of lime; kidney beans, phosphate of lime and potash; oranges, carbonate, sulphate, and muriate of potash; apples and pears, malate of potash; grapes, tartrate of lime; capsicums, citrate, muriate, and phosphate of potash; oak, carbonate of potash; and the lilac, nitrate of potash. Let no one fancy that the salts are a very trivial portion of the fabric of plants. In the capsicum, they constitute one-tenth of its fruit: of carrot juice, one-hundredth; of rhubarb, one-eleventh; of potatoes, one-twentieth; while of the seed of the *Lithospermum officinale* they actually form more than one-half.

CATALOGUES, &C., RECEIVED.—The *Gardener's Monthly* for December is at hand, as sprightly and as fresh as ever. We wish Mr. Meehan all the success he deserves.

The *Michigan Farmer*, (weekly,) edited by R. F. Johnstone, and published at Detroit, comes to us this week enlarged to a folio. We take this as an evidence of increased success which it well deserves. It is brimful of just such matter as the farmer and horticulturist most need, with a nice corner for the ladies.

The Homestead greets us weekly with its fund of useful and entertaining matter. It is an old friend, and is conducted with spirit and ability.

The *California Culturist* for October is on our table. It contains much useful and readable matter, and gives us a pleasing picture of the enthusiasm of our California confrères. A large part of the present number is well taken up with the proceedings of the California Horticultural Society and Fruit Convention. Go ahead, gentlemen.

Descriptive List of Dutch Bulbs and other Flower Roots, with full directions for culture. B. K. Bliss, Springfield, Mass. Full and complete.

AMERICAN STOCK JOURNAL.—We have received the first number of the second volume of this fine monthly. It is ably edited by D. C. Linsley, and abounds in practical information pertaining to the breeding, keeping, diseases, &c., of all kinds of domestic animals, and will be useful to a large class of our readers. We shall not hereafter deem it beside our purpose to

notice periodicals devoted to arts kindred to our own. We have elsewhere added a list of the various Agricultural and Horticultural periodicals of the day.

Correspondence.

THE following from Mr. Downing, correcting a statement of his in the January number for 1859, seems to us conclusive as to the distinctness of Hyde's Eliza and York Madeira, and we shall therefore have one synonym the less, and this is a great point gained:

HYDE'S ELIZA GRAPE.—In the article on Grapes in the January number of the HORTICULTURIST for 1859, I said that *Hyde's Eliza*, as received from two or three sources, was identical with York Madeira; but the past season I have ascertained to a certainty that they are distinct: the vine is of more vigorous growth, the bunch and berry larger, being somewhat like the Isabella, but a week or two earlier; it is not quite equal to it in flavor, although preferred by a few. Canby's August and Baldwin I still think are synonymous with York Madeira.

CHAS. DOWNING.

MR. EDITOR:—In the October number of the HORTICULTURIST for the year 1858, page 448, you published an account of a huge grape-vine. A short time ago, while I was engaged in a surveying expedition, my attention was called to a vine of so large a size I thought at the time it exceeded anything I had ever read of. But recollecting the account of the one in New Jersey, I turned to it, and it beats our Kentucky vine a little in circumference. I had no tape line with me, but measuring a string, we found it to be five feet eight inches in circumference five feet from the ground; and it seems to be the same size for twenty feet, where it is decayed, and the trunk appears to have been broken. Numerous strong branches put out from the huge body, holding it to its place; they cover a large black walnut. I did not inquire whether the vine bore or not. This vine is growing on the farm of Mr. Furna A. Cannon, in the Walnut Bottom near the Ohio river, about two and a half miles above the town of Mount Vernon, Ind.

About half a mile from the vine, Mr. Cannon showed us a sycamore tree, hollow at the ground, into which the hogs go for shelter in winter, and on one occasion he with another person stopped up the hole or entrance, and had thirty-six hogs inside the tree; it is proper to say some of them were small.

Hoping the account of these giant productions of our rich alluvial bottoms may not be uninteresting to you, I remain, yours respectfully, WALTER A. TOWLES.

Henderson, Ky.

[The Kentucky vine will do, but leaves New Jersey a little ahead. Kentucky, however, must have the palm on "pig-pens!"—ED. H.]

THE AMPELOPSIS OR VIRGINIA CREEPER.—What a magnificent plant this is! I do think that it is one of the most beautiful things in the country, although its flowers *are* of little or no account. Several years since, when the borer was destroying the Locust trees in this vicinity, (of which but few escaped,) there was one tree, which, standing upon the south side of the house, afforded a shade to several windows, and could not without much inconvenience be dispensed with. Looking upon its destruction as pretty certain, however, I proposed removing to it an Ampelopsis of some antiquity, which stood in a not very suitable spot, with the expectation that the vine would mantle the dead branches, and afford some shade until another tree could be reared. The creeper was removed with perfect success; its stem—nearly or quite an inch in diameter—was twined about the trunk and principal branches to the height of perhaps twenty feet, and moderately pruned. The experiment was so entirely successful, that by being envel-

oped in the broad foliage of the vine, the tree was saved from the ravages of the insect to such an extent that it only lost a part of its top, and is now in fine health, the only survivor of a large number of equal age: nor is this all. The Ampelopsis has grown with the greatest vigor, notwithstanding it was planted within four feet of the tree, and now overruns nearly the whole of the latter, hanging in masses and festoons from the higher branches, a perfect wilderness of foliage. I do not hesitate to say that it is the most beautiful object on the place, its young shoots, with their small and delicate light green leaves, forming a remarkably fine contrast to the immense foliage of the darkest green, which clothes the old wood. In addition to this, the gorgeous appearance of the whole mass after the October frosts have changed the different shades of green to the most brilliant and varied tints of crimson, scarlet, and yellow, is beyond my powers of description.

Its culture is the most simple: when young it should have a moderately rich and light soil in which to establish itself, for I think much depends upon giving it "a good start." The young shoots should be trained with some care to the surface which they are to occupy, whether of wood, stone, or brick, (the latter is perfectly appropriate). After they have become firmly attached, which they will soon do, if undisturbed, the plant may be left mostly to itself, watering well once or twice, if dry, and occasionally training a rambling shoot "in the way it should go." E.

[We know nothing to take the place of the *Ampelopsis hederacea*—it is so rapid in its growth, so thoroughly a *shade vine*, and so tractable as to produce an immediate effect. We find it at the north, and frequently far down in Southern states. The *A. bipinnata*, or Pepper-vine, which we have also cultivated, is hardly less beautiful, having a red tinge on its new growth; it requires something like an arbor or strings to cling to by its grape-like tendrils, and is very useful for an arch.—ED. H.]

DOES COLD KILL THE PRIVET?—The Privet has been a favorite hedge plant, in Buffalo, for many years, and previous to the extremely cold winter of 1854-5, there were many hedges of it which had attained a large size, some of which in beauty were scarcely to be surpassed by anything short of the Maclura. In the succeeding spring some persons discovered that their hedges were very late in pushing, and upon closer examination very many of the plants were apparently killed to the ground. In our own grounds, a short hedge of about four feet in height was taken up, cut down to about four inches, and replanted in another spot. The plants nearly all survived, but having been neglected, made little growth. Other hedges, after lingering for some weeks, eventually came into leaf, while some again either wholly or in part died.

Succeeding this came another cold winter, and again the hedges "caught it," so that of those which survived the former winter, few went through the summer without showing some indications of hard usage. In some instances, the plants were killed in spots, as if injured by an insect. In others the extremities were affected, while a few, not more sheltered, apparently escaped with little or no injury. This feature puzzles me: I have had suspicions that an insect might have something to do in the matter, but upon examining (not very scientifically, however) the plants, both dead and alive, I could detect no indications of the presence of any such foe. Remarkably fine standard plants have been gradually dying since, and are now defunct, and of the hedges I do not know of one (of any age) which has not been more or less injured.

Now, Mr. Editor, we have always been accustomed to consider the privet as hardy as the oak, and it has, I think, heretofore, so proved; but it appears that we have been greatly mistaken. I should much like to know if the experience of other parts of the country is similar to our own; and whether, in past years, there has been any complaint of a like nature. If the privet can not be relied upon as a hardy plant for ornamental hedges and screens, the multitudes who have already planted it for these purposes will be greatly disappointed. JUVENIS.

[We have heard of no similar instances of injury to the Privet from cold, notwithstanding

the severity of last winter, and are inclined to regard the cases presented by "Juvenis" as of a purely local character. We should be sorry to know that the Privet was not an entirely hardy plant.—Ed. H.]

For Market Purposes.—Your excellent article under this caption, Mr. Editor, contains precisely my own views on the subject, and I am quite rejoiced that you espoused what I consider the right side of the question. I long since became disgusted with the immense quantity of *talk* which has been lavished upon "fruits for market" and "fruits for cooking," both *in* and *out* of the conventions, the former term being translatable into "large, flavorless fruit, which bears well," and the latter "a fruit which is inedible in a raw state," both classes being utterly unfit to be eaten or cultivated in any civilized community. This system of occupying one's ground and attention with trees bearing poor fruit, merely because they *do bear*, seems to me very absurd. There are many varieties which are good both for eating at home and selling in market, and free bearers withal. So, too, in respect to culinary purposes. The commonly received opinion that a fruit can not be cooked unless unfit for anything else, is very erroneous, and I have satisfied myself and others to the contrary. For instance, the Duchesse d'Angoulême pear, which I have never heard spoken of as "a cooking fruit," is nevertheless capital for that purpose, while yet hard, and the same is true of many others. No one need look for better "cooking apples" than the Fall Pippin, Baldwin, R. I. Greening, and other table varieties. In the case of a variety which will keep for an unconscionable length of time, or is fit for cooking remarkably early, I would make exceptions, but am strongly in favor of discarding nearly the whole tribe of "cooking" and "market fruits," as commonly so called, without the least remorse.

The theory that a fruit, to be salable, must be, if not flavorless, of indifferent quality, is not founded upon fact. The true state of the case is, that there being but rarely any other than such fruits in the market, people are compelled to purchase them or none. I question if any fruit ever had a more widely spread popularity or was more eagerly sought for, than the White Doyenné pear—the Virgalieu of the New York markets. This certainly is not "a market fruit" in the common acceptation of the term, but of the very first quality, when well grown, and that it "cooks well" I can testify.

One of the finest of the subacid cherries, the May Duke, has no superior for cooking, and the Imperial Gage is a capital substitute for the coarse tough White Magnum Bonum plum, as a preserve. Let us then, Mr. Editor, commence a war of extermination against poor fruits "for market purposes:" continue to wield your influential pen in the cause, and we shall see if *good* will not triumph over *evil* in the end. Yours, A Buffalonian.

["A Buffalonian," on the whole, is about right; still we could hardly make up our mind to "cook" the Duchesse. She is too good, and at present, and until more extensively cultivated, too valuable, to be devoted to such a purpose.—Ed. H.]

Editor's Drawer.

We shall try to keep the "Drawer" filled with choice scraps from the foreign and domestic press. If, hereafter, any thing not very useful or interesting finds its way here, the reader may take it for granted that we have been indulging in an editorial "nap."

Influence of Air on the Soil.—It has been seen that the influence which the atmospheric forces exert upon the soil is various and extensive. Their action, indeed, is not rapid nor

energetic, and a very perfect exposure of the soil is necessary to catch much of the ameliorating influence. It is not, therefore, to be expected that a barren soil can be rendered fertile by mere exposure to the air, although it were wrought with a perfection that would have satisfied even Jethro Tull. The importance, however, of taking advantage of the manifold benefits to be derived from the air, it is hoped, has been rendered evident in the course of this paper. It needs scarcely perhaps be said that stagnant water will completely prevent any benefit that is to be looked for from this source, and that in the case of wet land its drainage must first of all be thoroughly effected. The ground being dry, and the rain consequently enabled slowly to filter through the soil, the full benefit of the atmospheric waters will be obtained. Unless in the case of sloping grounds, little rain water should run off the fields; almost the whole ought to sink gradually through the soil as it falls. In order, however, to gain the utmost advantage from the frosts and atmospheric influences, as great a surface should be exposed to the air as possible; and the best way to effect this would seem, in the case of ground under tillage, to be to have the soil plowed up into ridges like potato drills, and to leave it in this shape through the winter—a practice of which the advantage is well known to gardeners. Sir Joseph Paxton, for instance, advises that "the surface of all strong land should be laid up in ridges during the winter, as the action of frost, by expanding the moisture in it, leaves it when thawed in a fine pulverized, friable, or loosened state, by which it is rendered fertile, and ready immediately after levelling in favorable weather to receive the intended crop." Many other benefits, however, than those of the frost, will result. Are the oxygen, ammonia, carbonic acid, nothing? Let the agricultural mind, therefore, be of good cheer; the atmosphere is a force everywhere present; although his farm may be like Justice Shallow's, "barren, barren," he has at least this consolation—"Marry, good air!"—T. F. JAMIESON *of Ellon*, in the *English Agricultural Society's Journal*.

RAILWAY TRAVELLING AND MUSHROOMING.—"I was travelling last week," writes a correspondent, "by a railway on the English side of the borders of South Wales, when we happened to pass a field spangled with a most luxuriant growth of mushrooms. I had hardly remarked the circumstance to my companion, when we felt the train suddenly stop, and looking out to the front, we saw, to our astonishment, the driver jump off the engine, vault the fence, and proceed to fill his hat with the treasure. In a moment the guard was over the fence, following his example, which, as may be supposed, was infectious, for in less than half a minute every door was thrown open, and the field covered with the passengers, every one of whom brought back a pretty good hatful. Not till this desirable result was attained, did we proceed on our journey, some of us wondering whether we had been dreaming, and whether, instead of the Welsh border land, we were not travelling by some newly constructed forest line in the far West of America. We begged the guard, who didn't seem quite comfortable about the joke, to have the place entered for the future in his line of route, as the "Mushroom Station."—*Guardian*.

[This, certainly, is a pleasing picture of railway travel in England, and reminds us of a railway that used to run between Hudson and Berkshire, which on one occasion, we remember, stopped to enable one of the passengers to pick up his hat!—ED. H.]

REMARKABLE CONIFERS.—Few persons, I imagine, have had the opportunity of beholding finer specimens of the Cembra Pine and of Abies Canadensis (the Hemlock Spruce) than those now growing in the pleasure grounds at Osberton Hall. The Pinus Cembra is nearly 50 feet in height, and measures, at 20 feet from the ground, 60 feet in circumference, and the trunk at bottom girths 8 feet. Few of the Pinus tribe are more beautiful than this; its handsome conical shape, and short rigid horizontal branches, combined with its color, render it particularly attractive. It certainly deserves more extensive cultivation than it receives, for, planted as a single specimen, it is really magnificent. Opposite this tree stands the Hemlock Spruce above alluded to; its height is nearly equal to that of Cembra, and it measures at one yard from the

ground 160 feet in circumference; its graceful boughs bending down to the ground and forming one of the most delightful objects I ever saw. Both specimens are in the best of health and growing vigorously. The soil these trees are in is very light, and the subsoil sand and gravel.—EDWARD BENNETT, *Gard. Chron.*

FARFUGIUM GRANDE.—For the next few years this will be the most popular plant among the fancy variegated-leaved plants, because it is, like *Isolepis gracilis*, everybody's plant; a plant for the queen's drawing-room, and which will also do for the rooms and windows of all her majesty's subjects in the British isles; likewise for their rock gardens, wilderness dingles, and all fancy works in roots, stones, and all manner of rustic work. That is to say, provided it is kept on short commons at the roots, and not too much exposed to the sun; but above all, that every slug, and snail, and nibbling creature, within its reach, be caught and "killed as dead as a hammer," before the plant is risked out of doors.

But it is as a pot plant, and a trade plant in pots, that it will be most valuable and valued. It will be in Covent Garden Market this time next year at sixpence a pot, as sure as my name is Donald; there is no reason to prevent *Farfugium grande* from becoming a "state plant" in the markets of Great Britain and Ireland, in less than two years from the time it was sold for from two to three guineas a plant.—*Cottage Gardener.*

BED-ROOM DECORATION.—We condense the following from the *Cottage Gardener*. It presents a pleasing picture which we should be glad to see more common. We think we can see woman's hand in it all.

"Oh, give him taste! It is the link
Which binds us to the skies—
A bridge of rainbows thrown across
The gulf of tears and sighs;
Or like a widow's little one—
An angel in a child—
That leads him to his mother's chair,
And shows him how she smiled."

To show you that the admission of vegetable life into bed-rooms is more in vogue than formerly, I will give you a rough sketch of such an apartment which I was privileged to enter, and have permission to describe. The occupier of this apartment recognizes the principle, that

"Whatever cheerful and serene
Supports the mind, supports the body too."

At the end of the room is the window with balcony, from which spring clusters of blossoms of intermingled *Calystegia pubescens* and *Tropæolums*. These run up either side of the window on lattice-work. From an ornamental *terra cotta jardiniette* rise plants of *Lysimachia nummularia*, covering a wire-work screen with their golden blossoms. Fronting the window are the toilette-table, glass, &c. In the first break on the left hand side of the room is the washhand-stand; over this engravings and pictures in oil colors, &c., &c. The middle projection contains a gas stove with flue entering the chimney; above this the mantel-piece. At each end is a case of Ferns and Mosses arranged amid rockwood, colored scenery at the back imparting an additional charm.

Over one of these cases we find the lines—

"The green and graceful fern,
How beautiful it is!
There's not a leaf in all the land
So beautiful, I wis.

"Have ye e'er watch'd that ball unfolding,
With each stem and leaf wrapp'd small,
Coil'd up within each other
Like a round and hairy ball?

"Have ye watch'd that ball unfolding,
Each closely nestling curl,
And its fair and feathery leaflets
Their spreading forms unfurl?

"Oh, then most gracefully they wave
In the hedges like a sea,
And dear as they are beautiful
Are those fern leaves to me."

Over the other case—

"The tiny moss, whose silken verdure clothes
The time-worn rock, and whose bright capsules rise,
Like fairy urns, on stalks of golden sheen,
Demand our admiration and our praise
As much as cedars kissing the blue sky
Or Krubul's giant flower. God made them all,
And what He deigns to make should ne'er be deem'd
Unworthy of our study and our love."

Between the cases is a duplex statue in plaster, and amid the centre ornaments a bouquet of choice flowers.

Over the mantel-piece are views of the localities in which the Ferns were collected—Llangollen Vale, Tenby, &c. Above up to the ceiling are photographic and lithographic portraits, surmounted by the Art Union head of Christ.

In the next break we find pictures printed in colors, and a heating flue in connection with a system of hot-water apparatus. Lastly, next the door is a table with Wardian case, containing Ferns and Mosses, many of them exotic.

"Of all modes of enlivening the aspect of an apartment there is, perhaps, none more pleasing than the sight of plants and flowers suitably arranged and distributed. The enjoyment and instruction they afford are within the reach of all; the poor may partake as well as the rich. Great means and appliances are not needed. To the thoughtful mind the contemplation of the phenomena of vegetation is a constant source of interest." Especially is this so to the Christian. Whatever he finds

"Of beautiful or grand
In nature, from the broad, majestic oak
To the green blade that twinkles in the sun,
Prompts with remembrance of a present God."

E. A. C.

PURIFYING WATER.—In every age, and in every hot climate, from the healing of the waters of Marah until the present time, some vegetable has been employed to render noxious water palatable. In some parts of Ceylon, especially in the neighborhood of the coast, where the land is flat and sandy, the water is always brackish, even during the rainy season, and in the dry months it is undrinkable. The natives then make use of a berry for cleansing it and precipitating the impurities. I know the shrub and the berry well; but it has no English denomination, (qy. *Strychnos potatorum*?) The berries are about the size of a very large pea, and grow in clusters of from ten to fifteen together, and one berry is said to be sufficient to cleanse a gallon of water. The method of using them is curious, although simple. The vessel which is intended to contain the water, which is generally an earthen chatty, is well rubbed on the inside with a berry, until the latter, which is of a horny consistence, like vegetable ivory, is completely worn away. The chatty is then filled with the muddy water, and allowed to stand for about an hour or more, until all the impurities have precipitated to the bottom, and the water remains clear. I have constantly used this berry; but I certainly cannot say that the water has ever been rendered perfectly clear. It has been vastly improved, and what was totally undrinkable before has been rendered fit for use; but it has, at the best, been only comparatively good: and although the berry has produced a decided effect, the native accounts of its properties are greatly exaggerated.—*Baker's Ceylon.*

ON TREES AND TREE-BORING INSECTS.—It is commonly believed that insects eat through the bark of healthy trees, and then enter the wood itself. I have already stated that this is not my belief. The workings of boring insects would not shorten the life of a tree, by consuming a portion of the wood, provided there were enough of wood left to ensure the tree against the formidable assaults of the wintry blast. And, as for the bark; if the tree were

healthy, every hole which the insect had made through it would be repaired in due time by the fostering hand of nature.

During the proper season for increase of new wood, it is invariably formed at the periphery; and it steadily rolls on over the old wood already made. Insects do not possess the power of raising up the bark from the wood. The borers merely perforate it. When we discover different insects lurking between the bark and the wood, we must not accuse them of mischief; but we must attribute the separation of the two component parts of a tree either to some injury from without, or to disease from within. The insects assemble there merely for safety and comfort.

Bark once separated from the wood, which it has covered, will never more adhere to it. The disaster which the separation has made evident can only be repaired by new bark; and this new bark will appear exactly at the place where the effect from the accident has ceased, or where the internal disease has worn itself out. No actual renovation of wood ever takes place after the wood itself has once been formed. Holes made in it will always be holes; and they will retain their original shape and size, so long as the tree itself exists.

Now, if you take a butcher's knife, and cut your way deeply into the bowels of an animal, (an ox, to wit,) the animal in a minute or two will be as dead as Julius Cæsar. Not so with a tree. You may use your axe, and hew out two-thirds of the bole of a tree, without destroying its vital powers. In the course of time Dame Nature from without, by her admirable process at the periphery, will assist the tree in its need, and eventually will heal the gaping wound.

So that I am never much alarmed, or down in the mouth, at huge limbs being torn from the trees by the raging winds. Their loss of limbs is undoubtedly very great in some cases, and gives an unsightly appearance to the trees. Still these trees will live on, be the extent of the accident what it may. I am speaking of healthy trees only.

But when I examine a magnificent tree, with round holes made by the insect through its bark, oh, dear me! I shake my head in sorrow—my very heart misgives me, and I exclaim, "Grand ornament of our groves and lawns, it is nearly over with thee. Thy 'days are dwindled to the shortest span.' Some dire disease must have tainted thy once healthy juices, long before the Scolytus applied for a residence within thee. Should the wants of the oven-man not demand thee for the present, thou mayest yet remain erect for some time to come. But, of this be certain—that, although thou hadst no attractions for the boring-insect in thy day of health, believe me, now that thou art sick and feeble, he is sure to pounce upon thee; and he will ultimately bring thee to the dust in useless ruins; and that, too, at the very time when all the neighboring trees are vigorous around thee—setting thy keen devourer at defiance."

I invite the anxious reader to pay attention to any tree at which the Scolytus is pursuing his ordinary calling. Then, let him examine the same tree during the following summer, and he will find the little round holes in the bark, just as the insect had made them, without any alteration whatever. After this, let him take a gimlet, and bore as many dozens of holes as he may think fit in the sound bark of some undeniably healthy trees. Let him visit these in the course of the next summer, and he will perceive every gimlet hole made up, by new bark underneath the old bark.

This being the case, I trust it would tend to convince him that, while the Scolytus singles out some sickly tree wherein to form a lodgment for his wife and children, he knowingly neglects a healthy one.—CHARLES WATERTON, *Walton Hall.*

TO EXCLUDE FROST FROM A COLD PIT.—I have been accustomed to exclude frost from my only erection, a cold pit or frame, for three winters, by a very simple and inexpensive piece of apparatus, an account of which may be useful to some one of your readers, who, like myself, cannot avail himself of anything more costly in the way of a heating apparatus. It is simply this—a tin box nine inches square, the top made to lift off and put on like the lid of a canister, air-tight.

This is fixed in one of the front corners of the pit; a small pipe enters the bottom of the box, a quarter of an inch in the diameter of its bore, and an inch tin pipe runs from near the top of the box along the front of the pit, going through the end wall where it makes a turn upwards for six inches. The lid is taken off by a stout flange which runs along the sides, and the top is flat; on this a plate of iron twelve inches square, and about a quarter of an inch thick, is laid, which, when heated, gives off heat enough to keep up the temperature quite sufficient to preserve the plants from injury during a sharp frost, as I have several times experienced. The heating is effected by burning three or four night-lights (such as are sold in boxes, and consist of a wick passing through a thin slice of cork). A small tin vessel is placed inside the box, and serves to hold the oil: when lighted it will burn all night without any further attention. As there is no door to the apparatus, it is impossible for any injurious gases to escape inside the pit; the lid fits on tightly, and the air which circulates along the pipe enters through the bottom of the box at one end of the pit and passes out at the other, affording additional warmth, while little or no heat is lost. The cost of maintaining it in action is very trifling, and I have been able to preserve my plants beyond my expectation.—T. R. W.

Climatology.—A strikingly equable climate is found at Penzanee in Cornwall; it is the garden of the English vegetable markets, producing green peas in May, and every vegetable growth at early dates; in this respect it is in advance of Norfolk, Virginia, Penzanee being at the 50th parallel, and Norfolk at the 37th. The distance of latitude thus exceeds 900 miles between points corresponding in vegetable growths for three months of spring. In that part of England trees and plants which are natives of tropical climates often remain in the open ground through the winter without injury. Oranges, lemons, myrtles, camellias, magnolias, the Mexican Agave, &c., require no protection from frost, and in sunny exposures are grown in the open air. Yet these fruits are difficult to ripen, and the apricot and plum generally produce nothing; the grape rarely ripens, currants are acid, and the apple rarely comes to perfection. This is due to the low temperature and humidity there in contrast with our tropical summer, to which we owe our Indian corn no less than our melons and small fruits. In the West of England a floor of stone is almost always wet; in Ireland a wet piece of leather placed in a closed room will not dry in a month.

The uplands of Georgia, and the interior northward to Pennsylvania, have some resemblance to France in various points of cultivable capacity, and the averages of temperature would appear to confirm this more strongly than a further analysis will bear the comparison out; it is alternately too dry and too wet, too warm and too cold. The delicate lucerne, &c., fail here, and the finer varieties of grapes and olives also fail. But the Indian corn, tobacco, and cotton are adapted to this state of the climate, and the success is great. The shades of climate are a study in themselves; we hear at one time of tea in S. Carolina, and of other novel things elsewhere, but the acclimation of plants is a delicate operation. A colony of Greeks, from Smyrna in Asia, long since established themselves on the east coast of Florida, lat. 29°, a point far south of their native place, which is in latitude 38° 26′. They planted the orange and other tropical fruits, but now a few remnants only are left; the changes of temperature there are sometimes very severe. Near the Gulf of Mexico there is a tendency towards the development of a summer rainy season, and at New Orleans the characteristics of such a season are often strongly marked, the morning of each day being clear, but heavy rains setting in as the heat attains a high point. These always greatly lower the temperature, and cease in the evening.

Fruit of the Eugenia Ugni and Fuchsia Corymbiflora.—Great expectations were at one time formed in regard to the value of the fruit of *Eugenia Ugni* for the dessert; these

expectations have not, we believe, in this country at least, been realized. Our own experience is rather against it; it fails to satisfy us in this respect, and is not very highly esteemed in England, as we gather from what follows:

"As the fruit of *Eugenia Ugni* has attained a somewhat important feature from the fact of a prize being offered for it at the late Horticultural Show in London, it may be as well here to explain to the inexperienced what this fruit really is. As a new dessert fruit is a matter in which every one must feel an interest, and every one not being in possession of the tree, or, perhaps, not knowing what it is like, it may be well here to describe it.

"The *Eugenia Ugni* is a small-leaved evergreen shrub, apparently of slow growth, its foliage somewhat like the common Box tree, but I believe not very hardy. The fruit, of which so much was expected, is anything but handsome, being, in fact, as like the common Haw as anything else, and, though larger than the commonest of all, is not so large as those of the fancy kinds of that commonest of all fruit; but in color and largeness of eye it very much resembles the Haw. Now, a fruit with no great pretensions to appearance ought to have some good qualifications to entitle it to a place at table, and I am far from denying this its due in that respect, for its flavor is to my taste far from disagreeable; on the contrary, if the fruit was larger, I think it might become a favorite. There is a sort of richness about it which I have not found in anything else, and on the whole I like it better than some fruits that are occasionally sent to table, as the Passion fruit, Plantain, &c.; but its diminutive size and appearance are a defect not easily got over, and it is likely most people will feel dissatisfied with it after seeing it once. As a plant, however, it is worthy of attention, and it would seem to be well fitted to cover a low wall, it being on a situation of that kind that I have it growing, facing the south; the few berries there were ripening the middle of September.

"In its present condition the fruit of *Eugenia Ugni* is certainly inferior in point of appearance to that of several of the Fuchsias, and the latter are, I believe, equally wholesome and agreeable, the best bearing one being *Fuchsia corymbiflora*, which, if cultivated for its fruit, might be made both a useful and ornamental object, and its juicy berries of a dark plum-color might find themselves many friends. *F. fulgens* is equally fruitful, but the fruit is less showy, being a yellowish green; but these fruits are certainly as much entitled to attention as that of Eugenia, and possibly may get it when the failure of the other becomes patent."—J. ROBSON, in *Cottage Gardener*.

CHINESE MODE OF TAKING HONEY.—During my sojourn in this place, I had an opportunity of witnessing a novel mode of taking honey from bee-hives. The Chinese hive is a very rude affair, and looks very different to what we are accustomed to use in England; yet, I suspect, were the bees consulted in the matter, they would prefer the Chinese one to ours. It consists of a rough box, sometimes square, and sometimes cylindrical, with a movable top and bottom. When the bees are put into a hive of this description, it is rarely placed on or near the ground, as with us, but is raised eight or ten feet, and generally fixed under the projecting roof of a house or outbuilding. No doubt the Chinese have remarked the partiality which the insects have for places of this kind when they choose quarters for themselves, and have taken a lesson from this circumstance. My landlord, who had a number of hives, having determined one day to take some honey from two of them, a half-witted priest, who was famous for his prowess in such matters, was sent for to perform the operation. This man, in addition to his priestly duties, had the charge of the buffaloes which were kept on the farm attached to the temple. He came round in high glee, evidently considering his qualifications of no ordinary kind for the operation he was about to perform. Curious to witness his method of proceeding with the business, I left some work with which I was busy, and followed him and the other priests and servants of the establishment to the place where the hives were fixed. The form of the hives, in this instance, was cylindrical; each was about three feet in height, and rather wider at the bottom than the top. When we reached the spot where the hives were placed, our

operator jumped upon a table placed there for the purpose, and gently lifted down one of the hives and placed it on its side on the table. He then took the movable top off, and the honeycomb, with which the hive was quite full, was exposed to our view. In the meantime an old priest, having brought a large basin, and everything being ready, our friend commenced to cut out the honeycomb with a knife made apparently for the purpose, and having the handle almost at right angles with the blade. Having taken out about one-third of the contents of the hive, the top was put on again, and the hive elevated to its former position. The same operation was repeated with the second hive, and in a manner quite as satisfactory. But it may be asked, "Where were the bees all this time?" and this is the most curious part of my story. They had not been killed by the fumes of brimstone—for it is contrary to the doctrines of the Buddhist creed to take away animal life—nor had they been stupified with fungus, which is sometimes done at home: but they were flying about above our heads in great numbers, and yet, although we were not protected in the slightest degree, not one of us was stung, and this was the more remarkable, as the bodies of the operator and servants were completely naked from the middle upwards. The charm was a simple one; it lay in a few dry stems and leaves of a species of Artemisia (Wormwood) which grows wild on these hills, and which is largely used to drive that pest, the musquito, out of the dwellings of the people. This plant is cut early in summer, sun-dried, then twisted into bands, and it is ready for use. At the commencement of the operation which I am describing, one end of the substance was ignited and kept burning slowly as the work went on. The poor bees did not seem to know what to make of it. They were perfectly good-tempered, and kept hovering about our heads, but apparently quite incapable of doing us the slightest injury. When the hives were properly fixed in their places, the charm was put out, and my host and his servants carried off the honey in triumph.—*Fortune's China.*

CULTURE OF THE PETUNIA FROM SEED.—The improvement of the Petunia is now justly receiving marked attention, and no plant better merits it. For show, the Petunia, in our estimation, is one of the most valuable bedding plants we have. Thus far, American seedlings surpass those of foreign introduction in all the elements of a good flower. We saw some seedlings from Mr. Isaac Buchanan last fall, of great beauty; but the end has not been reached yet. The following is one mode of raising seedlings:

"It is but within these last ten years that this class of flowers has been brought into general notice, and during that time great improvement has taken place in the symmetry and substance of the blossoms, which has added much to their beauty, and rendered them still more attractive. The present mode of cultivating them as specimens, together with the peculiar fragrance they possess, unlike any other plant in cultivation, has deservedly won for them a place in the conservatory and the greenhouse, as well as the flower-border, where, under proper treatment, they form a conspicuous and interesting feature, when studded with their noble blossoms of varied colors. The following successful mode of their culture from seed will, I trust, be acceptable to those who admire the Petunia. About the beginning of March I prepare as much compost as I expect will be wanted for the season, by a mixture of one part decomposed leaf mould, two parts rich peat, and a portion of silver sand. At the same time I cleanse the pots or pans intended for use, that all may be sweetened and fit by the time the seed is to be sown.

"I commence operations by first sifting a little of the soil for sowing the seed upon, and carefully picking out all grubs and worms before using the same. I then put one inch of crocks at the bottom of the pan for drainage, and cover them with a little moss or coarse peat, to prevent the fine earth from running between, and fill up with the above compost, gently pressing it down with the hand till a smooth surface is obtained, when I sprinkle on the seed, distributing it as regularly as possible, and place the pan in a pit or frame where the heat ranges from 60° to 65°, with a sweet and humid atmosphere. In ten days or a fortnight the young plants will

make their appearance, when care must be taken to preserve them from slugs, wood-lice, &c., or the whole pan of plants may be devoured in one night. Give plenty of air; and, in order to keep them strong and stocky, raise the pans close up to the glass.

"As soon as the plants begin to get crowded, I prepare more pans, filled after the manner described above: prick out all the largest, and return them to the same pit or frame, taking care to shade and give air as often as necessary, till the plants have made fresh fibre. In a short time they will be fit to plant separately into 3-inch pots; they may then be removed to a cold frame, and a full supply of air must be given. As soon as they come into flower, select the best: those that are most circular, smooth on the edge, with the outline free from indentation, a stout corolla, and in color the greatest novelty combined with quality."—M.

BRUGMANSIA SUAVEOLENS.—Parties having large conservatories or entrance halls to decorate in the autumn, will find this one of the most useful plants, treated as under. If commencing with a young plant, it must be grown on as much as possible the first year, keeping it to one stem; and if anything like justice has been done, it will attain a considerable height, so that the next season's routine may be taken as the annual one. In March or April cut this back to (say) five or six feet, according to the height required, allowing from three to four for the growth of the young shoots before branching out. Shake it out, and repot it in a proportionate sized pot, giving it nothing but well-decayed melon ground dung, in lumps, and a little sand; if convenient to the parties, give a little bottom heat, that by having a stock it gives earlier bloom; but this is by no means necessary to success; when it begins to break all the shoots but one must be rubbed off: in this and the dung, I consider, lies the secret. For three months I have seen from twenty to eighty blooms out every morning on this young shoot, filling the air with perfume. The older the plant the more certain the success as to large blooms and rich dark leaves.—J F., *in Florist*.

HORTICULTURAL AND AGRICULTURAL PERIODICALS.—While, with a pardonable partiality, we would commend our own Magazine strongly to our friends, we are not insensible to the merits of others, and herewith append a list of the various Agricultural and Horticultural Periodicals of the day, in order that our readers may make themselves better acquainted with them, if so disposed. Any omission will be gladly supplied.

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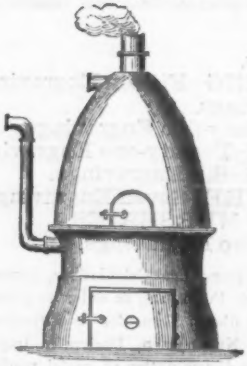

Fig. 1

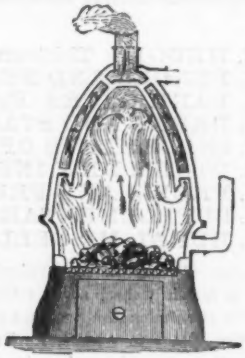

Fig. 2

The Subscribers most respectfully call the attention of Gardeners, Florists, Nurserymen, and the public in general to their new and improved Boiler for the above purpose, for which letters patent have been granted. The cuts show the appearance of the Boiler. Fig. 1 is an outside view. Fig. 2 is a vertical section through the centre.

The arrows indicate the course of the flame, and represent the heat passing between the two water chambers on its passage to the flue. There is no brick work whatever to the boiler, the stand which forms the ash pit being made of cast iron, with a ventilator in the door to regulate the draft to the fire. It will be seen from the above cuts that the boiler is two double casings, having two water chambers, connected together at the bottom and top by pipes; the heat radiating from the fire having nothing to obstruct it, strikes with great force against the whole interior surface of the boiler, thus preventing any accumulation of soot or dust. There being no outlet at the top of the inner dome for the gases to escape, they descend, to arise between the two water chambers on their passage to the flue, and are again brought in contact with the fire; by this means the fuel is economised, and a rapid circulation of the water is obtained with a very small amount of fuel.

This Boiler presents almost double the amount of heating surface to the fire, in proportion to its grate, over any other boiler yet made for the same purpose, and the form of the boiler is such, that the heat becomes absorbed and transmitted to the water previous to its escape to the flue, thus avoiding the great defects that all other boilers are subject to. The fire box is also large enough to receive a sufficiency of fuel to last twenty-four hours; this is an advantage which practical men accustomed to the use of Hot Water Apparatuses will fully appreciate. References will be given as regards its superiority over all other boilers, by applying to the undersigned.

Messrs. W. & C. having had several years' practical experience in the manufacture and construction of Hot Water Apparatuses, feel justified in stating that for effectiveness, durability, with economy of fuel combined, that these Boilers cannot be equaled by any other boiler now in use.

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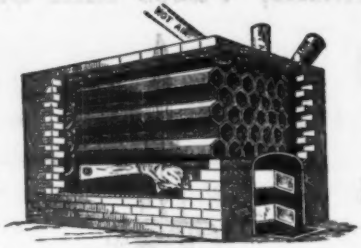

GREEN-

HOUSES,

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Forcing Pits,

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After a thorough test of our Hot Water Furnace, in different parts of the Union, the past three winters, we confidently offer it to the public as possessing the following advantages (among many) over Hot Air Furnaces, long circuitous coils of Steam Pipes, or Radiators:

First—This HOT WATER FURNACE warms a large volume of *Fresh Air* from the outside, by passing it over a radiating surface, and through Hexagonal Pipes, entirely surrounded by *hot water*, not exceeding a temperature of 212 degrees; thus introducing into the apartments, an atmosphere, with all its *moisture* and *vitality*, *soft*, *agreeable*, and *invigorating*.

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Fifth—It is *durable*, has *few water joints*, DOES NOT LEAK, needs *no repairs*, is *easily managed*, requiring fuel but twice in twenty-four hours, does not shrink nor *injure the furniture and the woodwork of the building*, AND CAN NEVER SET THEM ON FIRE.

Sixth—It is the only apparatus yet introduced, by which *Conservatories*, *Green Houses*, *Forcing Pits*, &c., can be kept with little care, at an even temperature, and, at the same time, admit of ventilation, which will furnish an atmosphere as *pure* and *fresh inside as outside*: so that *Fruits*, *Plants*, &c., may be grown as *high colored* and *well flavored* as in the open air.

Seventh—This HOT WATER FURNACE has been in *successful operation, and gives perfect and entire satisfaction*. We refer to the many testimonials received, and solicit an examination of our apparatus. Full estimates and plans given, and all work executed *promptly*, and personal attention given to the same, by the proprietor

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GENTLEMEN—Inclosed I hand you a slip from the *Daily News*, published in this city, giving an account of the fire that burned the Alabama Warehouse. King, Allen & Carmak had one of your *Large Size Safes*, **Wilder's Patent**, with folding doors, in which were their valuable books and papers. It stood on a brick column 14 feet high, which put it on a level with our office floor. Under the floor was cotton in bales (several hundred) stored up to the floor; the heat of **Four Thousand Bales, the Burning of the Floor, and the Falling in of the Roof upon the Safe**, made an intense heat. After the front wall fell in, the Safe was seen by thousands, standing in its place **Red Hot for 6 Hours**. Two days after, we succeeded in getting to it, and on opening it, we found **Everything "All Right."** The varnish had stained *a few loose papers* only, very slightly. I write this supposing you would feel an interest in knowing what had become of one of your best Iron Safes.

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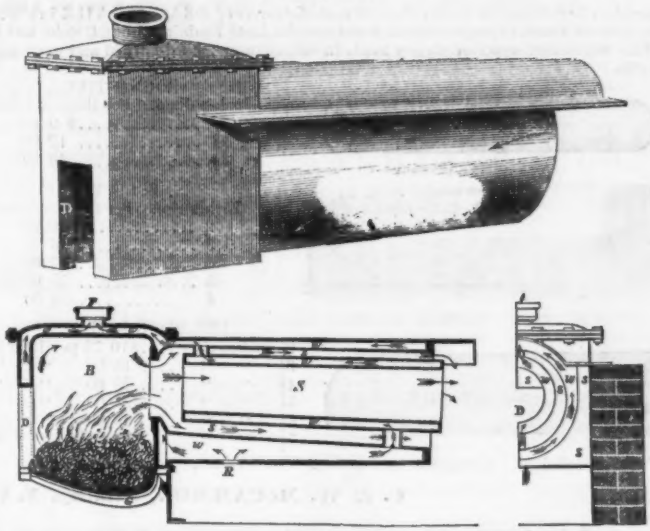

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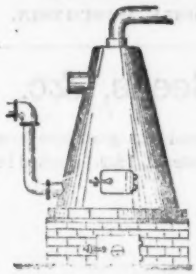

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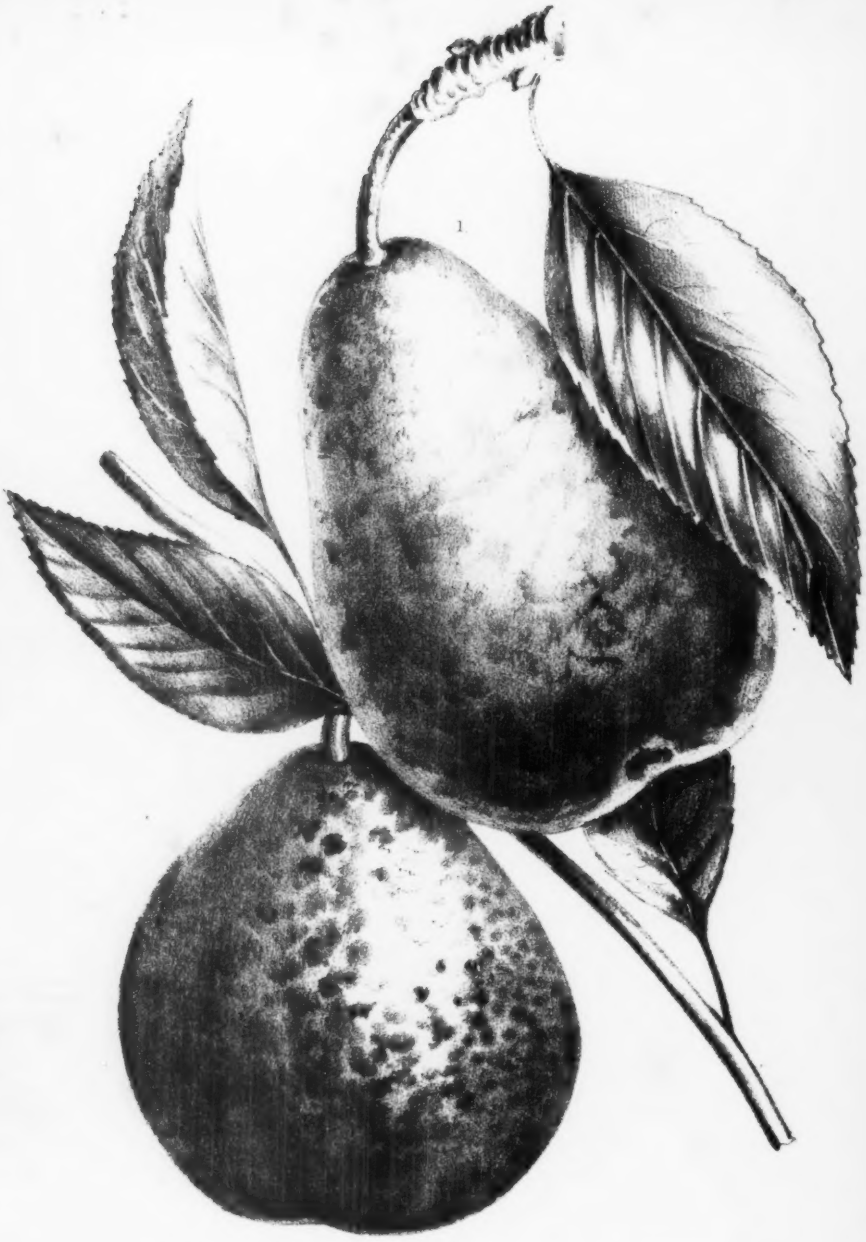

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